



Billing Code 4333–15

**DEPARTMENT OF THE INTERIOR**

**Fish and Wildlife Service**

**50 CFR Part 17**

**[Docket No. FWS–R8–ES–2016–0078; 4500030113]**

**RIN 1018–BB64**

**Endangered and Threatened Wildlife and Plants; Withdrawal of the Proposed Rule to List *Chorizanthe parryi* var. *fernandina* (San Fernando Valley Spineflower)**

**AGENCY:** Fish and Wildlife Service, Interior.

**ACTION:** Proposed rule; withdrawal.

**SUMMARY:** We, the U.S. Fish and Wildlife Service (Service), withdraw our September 15, 2016, proposed rule to list *Chorizanthe parryi* var. *fernandina* (San Fernando Valley spineflower), a plant from southern California, as a threatened species under the Endangered Species Act of 1973, as amended (Act). This withdrawal is based on our conclusion that the threats to this plant, as identified in the proposed rule, are no longer as significant as we believed them to be when we issued the proposed rule. We base this conclusion on our analysis of current and future threats and conservation efforts. We find the best scientific and commercial data available indicate that the threats to *C. parryi* var. *fernandina* and its habitat have been reduced below the level where this plant would meet the statutory definition of threatened or endangered. Therefore, we are withdrawing our proposal to list *C. parryi* var. *fernandina* as a threatened species.

**DATES:** The proposed rule that published on September 15, 2016 (81 FR 63454), to list *Chorizanthe parryi* var. *fernandina* as a threatened species under the Act, is withdrawn on [Insert

date of publication in the *Federal Register*].

**ADDRESSES:** This document, comments on our proposed rule, and supplementary documents are available on the Internet at <http://www.regulations.gov> at Docket No. FWS–R8–ES–2016–0078. Comments and materials received, as well as supporting documentation used in the preparation of this withdrawal, are also available for public inspection, by appointment, during normal business hours at: U.S. Fish and Wildlife Service, Ventura Fish and Wildlife Office, 2493 Portola Road, Suite B, Ventura, CA 93001; telephone 805-644-1766.

**FOR FURTHER INFORMATION CONTACT:** Stephen P. Henry, Field Supervisor, U.S. Fish and Wildlife Service, Ventura Fish and Wildlife Office, 2493 Portola Road, Suite B, Ventura, CA 93003; telephone 805–644–1766. Persons who use a telecommunications device for the deaf (TDD) may call the Federal Relay Service at 800–877–8339.

#### **SUPPLEMENTARY INFORMATION:**

##### **Executive Summary**

*Why we need to publish this document.* Under the Endangered Species Act, a species may warrant protection through listing if it is endangered or threatened throughout all or a significant portion of its range. Listing a species as an endangered or threatened species can only be completed by issuing a rule. We issued a proposed rule to list *Chorizanthe parryi* var. *fernandina* in 2016. This document withdraws that proposed rule because, based on our evaluation of the best scientific and commercial information available at this time, we have determined that threats have been reduced such that listing is no longer necessary for this plant.

*The basis for our action.* Under the Endangered Species Act, we can determine that a species is an endangered or threatened species based on any of five factors: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for

commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence. We have determined that threats have been reduced such that listing is no longer necessary for this plant.

*Peer review and public comment.* We sought comments from independent specialists to ensure that our analysis was based on scientifically sound data, assumptions, and analyses. We invited these peer reviewers to comment on the information we relied upon in making our listing proposal, including the Species Report for the San Fernando Valley Spineflower (*Chorizanthe parryi* var. *fernandina*) (Service 2016). We also considered all comments and information we received during the comment periods.

### **Previous Federal Actions**

On September 15, 2016, we published a proposed rule (81 FR 63454) to list *Chorizanthe parryi* var. *fernandina* as a threatened species under the Act (16 U.S.C. 1531 *et seq.*). Please refer to this proposed rule for information on Federal actions prior to September 15, 2016.

Under section 4(b)(6) of the Act, the Service is required to make a final listing determination within 1 year from the publication of the proposed rule, by publishing either a final listing rule or a withdrawal of the proposed rule, or extending the final determination by not more than 6 months under certain circumstances specified in the Act. On July 19, 2017, the Service published a 6-month extension of the final determination on the proposed threatened status for *C. parryi* var. *fernandina* and reopened the comment period on the proposal for an additional 30 days (82 FR 33035).

After publication of the proposed rule in the *Federal Register*, the Service and the Newhall Land and Farming Company (Newhall Land) developed a candidate conservation

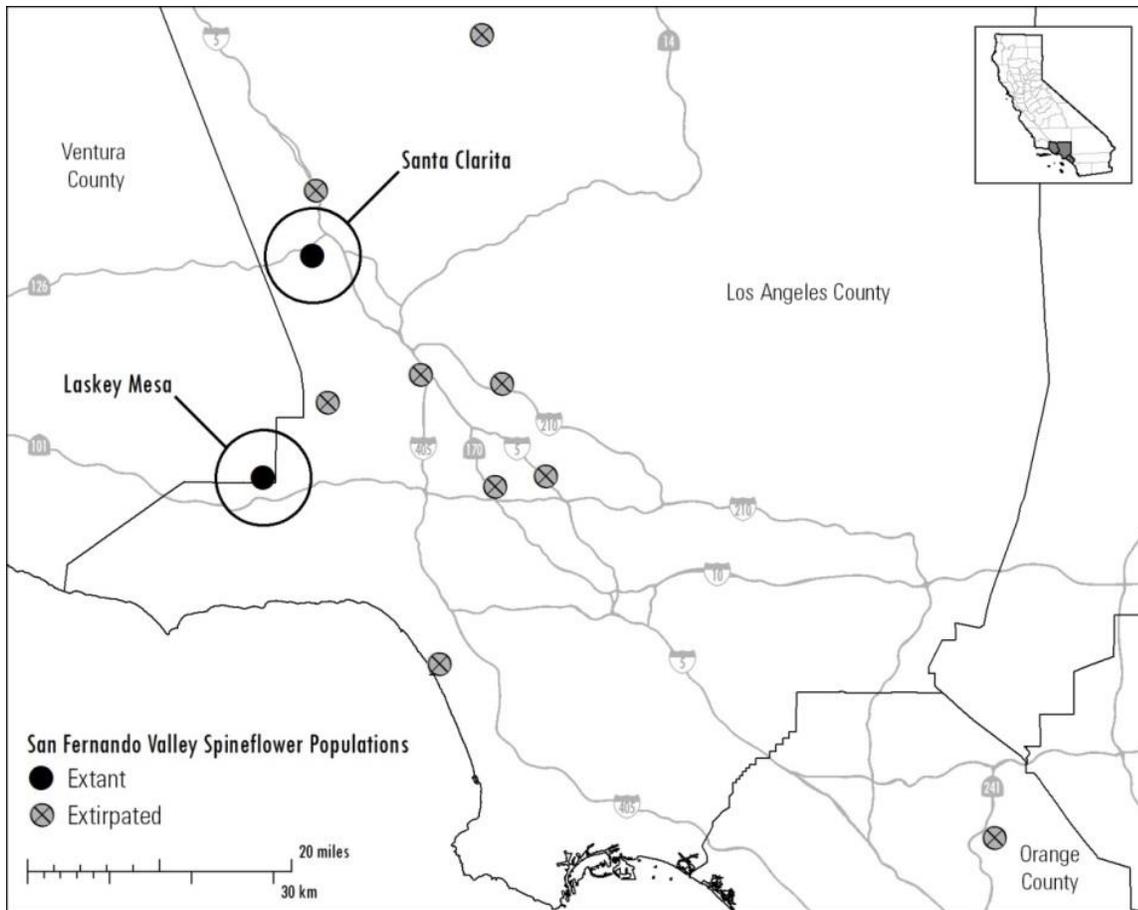
agreement (2017 CCA) for *C. parryi* var. *fernandina* to implement conservation measures to improve the status of the plant. On November 13, 2017 (82 FR 52262), the Service reopened the comment period on the proposed rule to list *C. parryi* var. *fernandina* as a threatened species for an additional 30 days so that interested parties and the public could review and comment on the additional conservation measures provided by the 2017 CCA.

During all three comment periods on the September 15, 2016, proposed rule, the Service requested additional information on the status of *C. parryi* var. *fernandina* or its habitat so that we could analyze this additional information as part of the final listing process. As part of our analysis, we also evaluated the certainty of effectiveness and certainty of implementation of the additional conservation measures that the 2017 CCA signatories have committed to implement.

## **Background**

A thorough review of information that we relied on in making this determination—including information on taxonomy, life history, ecology, population distribution and abundance, land ownership, and potential threats—is presented in the Species Report for the San Fernando Valley Spineflower (*Chorizanthe parryi* var. *fernandina*) (Species Report; Service 2016), available on the Internet at <http://regulations.gov> under Docket No. FWS–R8–ES–2016–0078. A summary of this analysis is included in the September 15, 2016, proposed rule (81 FR 63454) and appears below. We used data specific to *C. parryi* var. *fernandina* when available.

**Figure 1. Historical and current *Chorizanthe parryi* var. *fernandina* population locations in California.**



### *Current Abundance and Distribution*

*Chorizanthe parryi* var. *fernandina* currently occupies up to a total of 35–40 acres (ac) (14–16 hectares (ha)) from two populations in Southern California that are 17 miles (mi) (27 kilometers (km)) apart (see Figure 1, above). The Laskey Mesa population is in Ventura County, California, within the Upper Las Virgenes Canyon Open Space Preserve on land owned by the Santa Monica Mountains Conservancy (SMMC) and the Mountains Recreation Conservation Authority (MRCA) (SMMC 2015). The Santa Clarita population is in Los Angeles County on land owned by Newhall Land (Dudek 2010, pp. 16–17). The Laskey Mesa population currently occupies approximately 15–20 ac (6.1–8.1 ha) (GLA 2000, p. 6; Sapphos 2001, p. 5-2; Sapphos

2003a, p. 3; Cooper 2015, pp. 8–10); the Santa Clarita population currently has a cumulative occupied area of approximately 20 ac (8.2 ha) (Dudek 2010, p. 63).

Comparing annual numbers of *C. parryi* var. *fernandina* individuals over time is complicated because: (1) Different methodologies and levels of effort have been used to estimate population numbers across both extant populations during survey efforts since 1999; and (2) as is typical of many annual plants, *C. parryi* var. *fernandina* shows inter-annual variation in abundance by several orders of magnitude, ranging from hundreds to millions of individuals. Therefore, occupied area or distribution of the populations is an appropriate surrogate measure for plant population size. The Santa Clarita population has roughly the same occupied acreage as Laskey Mesa but is more widely distributed across the landscape, scattered over a range of 4 mi (6.4 km) from east to west, and 4 mi (6.4 km) north to south.

### **Summary of Basis for Withdrawal**

Based upon our review of the public comments, comments from other Federal and State and County agencies, partner and peer review comments (see **Summary of Comments and Recommendations**, below) and any new relevant information that may have become available since the September 15, 2016, publication of the proposed rule, we reevaluated our proposal. That reevaluation is reflected in this document as follows:

(1) Based on our analyses, the Service has determined that *Chorizanthe parryi* var. *fernandina* should not be listed as a threatened species. This document withdraws the proposed rule published on September 15, 2016 (81 FR 63454).

(2) This document summarizes and evaluates the 2017 CCA and provides an analysis using the Service's Policy for Evaluation of Conservation Efforts When Making Listing

Decisions (PECE) (68 FR 15100; March 28, 2003). See **Ongoing and Future Conservation Efforts**, below.

(3) This document summarizes and evaluates the effects of the December 5, 2017, Rye Fire to *Chorizanthe parryi* var. *fernandina* at Newhall Ranch (Santa Clarita population). See **Summary of Biological Status and Factors Affecting the Species**, below.

### **Ongoing and Future Conservation Efforts**

Below, we summarize conservation efforts that provide benefits to *C. parryi* var. *fernandina* that are already occurring or are expected to occur in the future. We have also completed an analysis of the newly initiated efforts in the 2017 CCA pursuant to PECE. The full PECE analysis can be found at <http://www.regulations.gov> at Docket No. FWS–R8–ES–2016–0078. Planned Conservation Measures

For the Santa Clarita population, the California Department of Fish and Wildlife (CDFW) approved the 2010 Newhall Ranch Spineflower Conservation Plan (SCP) and issued an incidental take permit (permit no. 2081-2008-012-05, the ITP) under the California Endangered Species Act, California Fish and Game Code section 2050-2085 (CESA) in 2010, for the SCP and proposed Newhall Land development within the SCP area that would result in the partial removal of *C. parryi* var. *fernandina*. The SCP serves as the mitigation and conservation plan for the purposes of the State ITP (CDFG 2010, p. 2). Through the SCP, the CDFW has required Newhall Land to provide for the perpetual conservation and management of seven spineflower preserves within the Santa Clarita population, totaling 228 ac (92 ha), located within the SCP enrolled lands on Newhall Land property. The SCP spineflower preserves contain approximately three-quarters of the cumulative occupied spineflower habitat on Newhall Land property, totaling approximately 15 ac (6 ha). Newhall Land has granted conservation easements to the CDFW

over all of the SCP spineflower preserves. The SCP conservation measures include habitat enhancement and creation for spineflower, and experimental introduction of spineflower in areas outside of existing occupied habitat. The SCP also includes management actions within the preserves to reduce indirect effects of the proposed development (including those from nonnative, invasive grasses and Argentine ants). Newhall Land is implementing an adaptive management program for impacts under the SCP (Dudek 2010a, p. 141) and the Argentine Ant Control Plan (Dudek 2014c, p. 22). Permanent conservation easements for the preserves have been established. Newhall Land has already provided endowments to fund management and monitoring of the SCP spineflower preserves, and will provide more funding in SCP endowments as required by the ITP. The SCP is available at <http://www.regulations.gov> under Docket No. FWS-R8-ES-2016-0078.

Newhall Land has also deposited funds with the National Fish and Wildlife Foundation for management of *C. parryi* var. *fernandina* at the Laskey Mesa population. The August 2014 PAR and September 2014 memorandum prepared by Dudek identify the management activities for *C. parryi* var. *fernandina* at Laskey Mesa as part of the SCP (Newhall Land and Dudek 2014, entire). The funding is to be used for on-the-ground management activities that include research studies, fencing, weeding, surveys, annual reporting, and other activities. When this funding becomes accessible, we anticipate that the MRCA will implement the identified management activities.

The rest of the SCP, including construction monitoring, habitat restoration, fencing and signing, and water control at the Santa Clarita population, has not yet been implemented. The implementation will occur in phases associated with the Newall Ranch development project.

Even with the conservation measures in the SCP, the proposed rule identified several threats that were still negatively acting on *C. parryi* var. *fernandina* and its habitat. Threats identified in the proposed rule included: (1) Historical and future loss of habitat and individuals from development (Santa Clarita); (2) having small, isolated populations (Santa Clarita and Laskey Mesa); (3) presence of invasive, nonnative plants (Santa Clarita and Laskey Mesa); (4) proliferation of Argentine ants (*Linepithema humile*) (Santa Clarita); (5) the potential effects of climate change (Santa Clarita and Laskey Mesa); and (6) synergistic effects of the individual factors listed above (Santa Clarita and Laskey Mesa) (81 FR 63454; September 15, 2016).

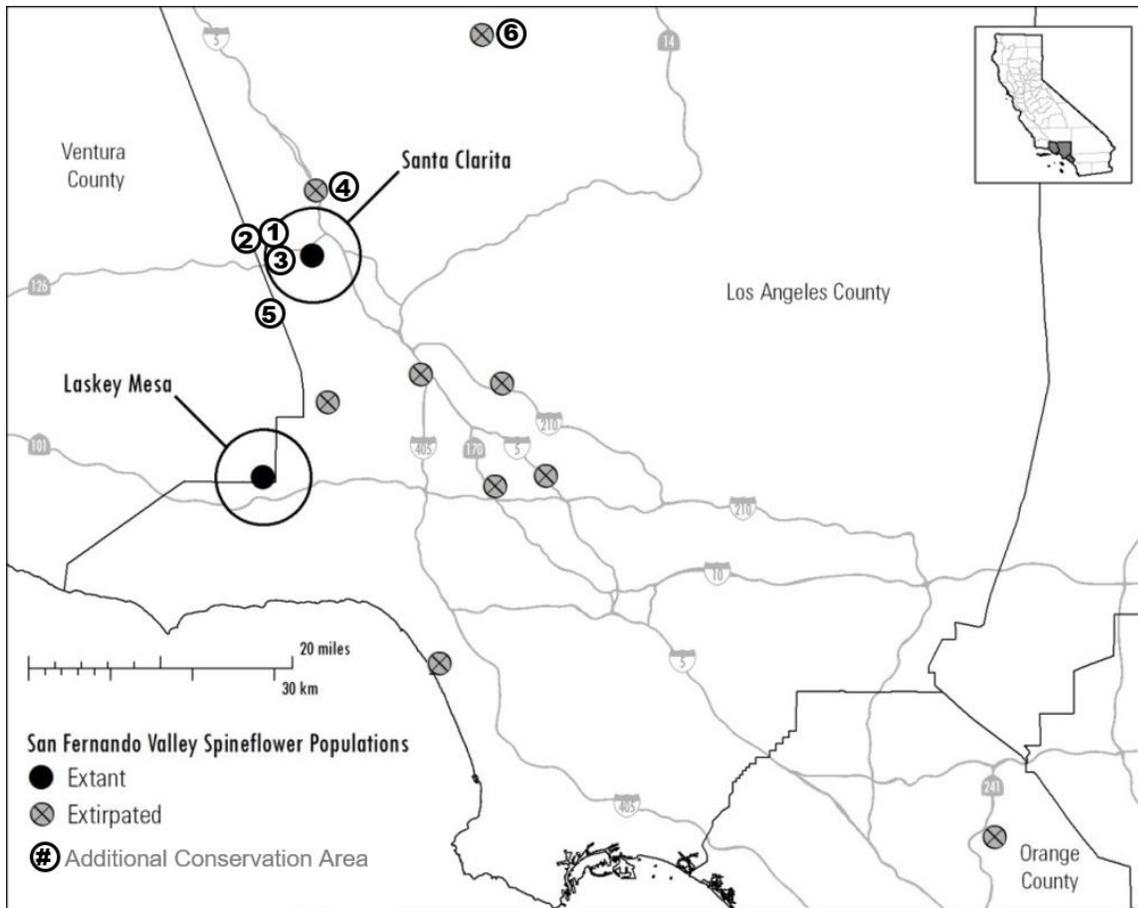
The 2017 CCA outlines several new conservation actions that will be enacted to address the current and future threats that we identified in our September 15, 2016, proposed rule (81 FR 63454). Additional conservation measures of the 2017 CCA are discussed below. We have also formally evaluated all 2017 CCA conservation measures pursuant to PECE, thereby taking all formalized conservation measures into consideration before making our final determination of the status of the plant. The Service's detailed PECE analysis, as well as the 2017 CCA and exhibits, are available for review at <http://www.regulations.gov> at Docket No. FWS-R8-ES-2016-0078.

The 2017 CCA provides for Newhall Land to voluntarily implement additional conservation measures described in the introduction plan with the goal of enhancing the status of *C. parryi* var. *fernandina*. The introduction plan provides for Newhall Land to voluntarily establish new, protected *C. parryi* var. *fernandina* occurrences within the plant's historical range that are expected to increase the resiliency of the existing populations and expand the redundancy and representation of the spineflower. Newhall Land will voluntarily conserve an additional 1,498 ac (606 ha) of its property for the benefit of *C. parryi* var. *fernandina* and carry

out additional conservation activities for the plant within portions of those 1,498 ac (606 ha) and within an approximately 7-ac (2.8-ha) portion of the existing CDFW Petersen Ranch Mitigation Bank (see Figure 2, below) collectively called the additional conservation areas associated with the CCA. *C. parryi* var. *fernandina* introduction will occur on a total of at least 10 ac (4 ha) within the additional conservation areas.

The additional conservation areas in the introduction plan are intended to further increase the distribution of *C. parryi* var. *fernandina* within its historic range and include approximately 1,505 ac (609 ha), as follows: (1) Three additional conservation areas totaling approximately 825 ac (334 ha) are contiguous with or adjacent to the existing San Martinez Grande and Potrero preserves established under the SCP (all of which would be considered part of the Santa Clarita population, Areas 1–3 in Figure 2, below); (2) an additional conservation area of 357 ac (144 ha) is located in the Simi Valley watershed on the southern boundary of Newhall Land property in Ventura County (Area 5 in Figure 2); (3) an additional conservation area of approximately 316 ac (128 ha) is located on Newhall Land property in the Castaic Mesa area in northern Los Angeles County, near a known extirpated population location (Area 4 in Figure 2); and (4) an additional conservation area is located in a 7-ac (2.8-ha) portion of the Petersen Ranch Mitigation Bank adjacent to Elizabeth Lake, also near a known extirpated population location (Area 6 in Figure 2). *C. parryi* var. *fernandina* introduction will occur on a total of at least 10 ac (4 ha) within the additional conservation areas.

**Figure 2. Numbered Additional Conservation Areas in the San Fernando Valley Spineflower Introduction Plan provided for by the 2017 CCA.**



Sources: California Department of Fish and Wildlife, California Natural Diversity Database (2015/11/01).

In carrying out the additional conservation measures described in the introduction plan, Newhall Land will introduce *C. parryi* var. *fernandina* within portions of the additional conservation areas with the goal of establishing at least two new self-sustaining, persistent *C. parryi* var. *fernandina* occurrences, at least one of which will be in a different ecoregion from the existing populations. Newhall Land will put each of the additional conservation areas into permanent conservation to ensure that habitat values of the spineflower are maintained. Newhall Land has funded an endowment for all initial habitat enhancement and *C. parryi* var. *fernandina* introduction activities within the additional conservation areas, and will fund one or more endowments to provide perpetual management and monitoring within the additional conservation areas, based on a PAR.

Newhall Land began implementation of the introduction plan in 2016, by commencing site investigations to identify the additional conservation areas and suitable *C. parryi* var. *fernandina* introduction sites within the additional conservation areas, and by commencing seeding trials within the San Martinez Grande Preserve Expansion—Los Angeles County and Potrero Preserve Expansion Additional Conservation Areas. Newhall Land will continue to conduct seeding trials within each of the additional conservation areas in accordance with the introduction plan.

The first step for each introduction site is the establishment of seeding trials. A series of initial seeding trials will be implemented at the proposed introduction areas prior to widespread introductions. The seeding trials are expected to take a minimum of 2 years to implement and obtain meaningful results. The seeding trials will be followed by more widespread introductions. The locations for widespread introductions will be based on where seeding trials demonstrate a reasonable probability of success and will occur on a minimum of 10 ac (4 ha) within the additional conservation areas. Following the initial 10-year implementation period for an additional conservation area under the introduction plan, and a determination made in consultation with the Spineflower Adaptive Management Working Group that newly occupied *C. parryi* var. *fernandina* habitat within the additional conservation area contains one or more self-sustaining occurrences, Newhall Land or its designee will conduct long-term management (including adaptive management), monitoring, and annual reporting of the newly occupied habitat within the additional conservation areas in perpetuity.

Enhancement activities in areas surrounding introduction sites will be implemented prior to or concurrently with *C. parryi* var. *fernandina* introduction. Anticipated enhancement activities include passive and active revegetation of native vegetation communities, including weed control

to ameliorate the threat of invasive, nonnative grasses. Enhancement activities will occur with an adaptive management approach that will continue beyond the 10-year maintenance and monitoring period and into the long-term management period. Targeted areas for habitat enhancement correspond to the sites identified for introduction and an approximately 50-ft (15-meter (m)) area surrounding introduction sites.

All *C. parryi* var. *fernandina* introduction sites will be closed to public access. Existing dirt access roads and utility easement access roads within the additional conservation areas will function as the intended access points to the introduction sites for the project biologist, landscape contractor, utility personnel, and emergency services vehicles (e.g., police, fire, and medical). Signs identifying restricted land and discouraging unauthorized access/entry into the introduction sites will be posted on all gates providing access to introduction sites, adjacent to any roads that border introduction sites, and along any introduction site fencing. The signs will indicate that enhancement activities are in progress and that the areas are to be protected.

The introduction plan describes in detail the biological monitoring of the introduction sites that will be conducted to determine the status of introduced *C. parryi* var. *fernandina* through monitoring and collection of qualitative and quantitative data. Monitoring will occur in the winter and spring of each year while the plants are actively growing and in bloom/seed. Additional monitoring at the sites will occur periodically throughout the year to determine the need for maintenance measures related to protecting the introduction sites from weed invasion or other disturbances. Reference sites will be established within both the Santa Clarita population and Laskey Mesa population to ensure that the reference sites encompass the range of conditions currently supporting *C. parryi* var. *fernandina*. A sufficient number of sampling plots will be established to capture site variability so that, collectively, the reference sites are representative of

the range of conditions of occupied habitat. Annual monitoring of the introduction sites will include at least three quantitative biological assessments each year, to be timed with the peak of the growing season before plants have begun to desiccate, during the flowering period of *C. parryi* var. *fernandina*, and during seed set (approximately February, May, and June). The quantitative monitoring methods are established for the purpose of collecting adequate data to be able to analyze the relative success or failure of the introduction program in terms of achieving the project goals. Quantitative monitoring will begin in the first year after establishing seeding trials and will include monitoring of density, seed production, seed viability, population size, recruitment, and aerial extent. The monitoring period will commence upon initiation of seeding trials and continue for a period of 10 years.

#### *Summary of PECE Analysis*

The purpose of PECE is to ensure consistent and adequate evaluation of recently formalized conservation efforts when making listing decisions. The policy provides guidance on how to evaluate conservation efforts that have not yet been implemented or have not yet demonstrated effectiveness. The evaluation focuses on the certainty that the conservation efforts will be implemented and effective. The policy presents nine criteria for evaluating the certainty of implementation and six criteria for evaluating the certainty of effectiveness for conservation efforts. These criteria are not considered comprehensive evaluation criteria. The certainty of implementation and the effectiveness of a formalized conservation effort may also depend on species-specific, habitat-specific, location-specific, and effort-specific factors. We consider all appropriate factors in evaluating formalized conservation efforts. The specific circumstances will also determine the amount of information necessary to satisfy these criteria.

To consider that a formalized conservation effort contributes to forming a basis for not

listing a species, or listing a species as threatened rather than endangered, we must find that the conservation effort is sufficiently certain to be (1) implemented, and (2) effective, so as to have contributed to the elimination or adequate reduction of one or more threats to the species identified through the section 4(a)(1) analysis. The elimination or adequate reduction of section 4(a)(1) threats may lead to a determination that the species does not meet the definition of endangered or threatened, or is threatened rather than endangered.

An agreement or plan may contain numerous conservation efforts, not all of which are sufficiently certain to be implemented and effective. Those conservation efforts that are not sufficiently certain to be implemented and effective cannot contribute to a determination that listing is unnecessary, or a determination to list as threatened rather than endangered. Regardless of the adoption of a conservation agreement or plan, however, if the best available scientific and commercial data indicate that the species meets the definition of “endangered species” or “threatened species” on the day of the listing decision, then we must proceed with appropriate rulemaking activity under section 4 of the Act. Further, it is important to note that a conservation plan is not required to have absolute certainty of implementation and effectiveness in order to contribute to a listing determination. Rather, we need to be certain that the conservation efforts will be implemented and effective such that the threats to the species are reduced or eliminated.

Using the criteria in PECE (68 FR 15100, March 28, 2003), we evaluated the certainty of implementation (for those measures not already implemented) and effectiveness of conservation measures pertaining to *Chorizanthe parryi* var. *fernandina*. The Service’s detailed PECE analysis is available at <http://www.regulations.gov> at Docket No. FWS–R8–ES–2016–0078. As summarized below, we have determined that there is sufficient certainty that the conservation

efforts outlined in the 2017 CCA will be implemented and effective, and significantly reduce the identified threats and their impacts to *C. parryi* var. *fernandina* and its habitat.

Summary: Certainty that Conservation Efforts will be Implemented

We have certainty that the conservation efforts will be implemented because the implementation of the 2017 CCA has already begun and funding has been secured, providing certainty that funding will continue to be available to implement the conservation efforts. The seeding trials began in 2016, restrictive covenants have been placed over the CCA additional conservation areas on Newhall Property, consent has been obtained to perform *C. parryi* var. *fernandina* introduction within the Peterson Mitigation Bank, and the endowment for the initial phases of implementing the CCA has been established. In addition, the parties to the CCA have the legal and regulatory authority to implement the agreement, which includes an implementation schedule (including incremental completion dates) for the conservation efforts.

Summary: Certainty that Conservation Efforts will be Effective

We have certainty that the conservation efforts will be effective because the nature and extent of threats is adequately addressed in the 2017 CCA, including improving resiliency of the Santa Clarita population, increasing the number of ecoregions in which the plant is represented, and adding to the overall redundancy of the species. In addition, the combined factors of documented success with other *Chorizanthe* introductions, the introduction site selection based on scientific analysis of occupied sites, positive results of 2016 spineflower seeding trials, and the accompanying enhancement program to aid establishment and persistence provide the rationale and optimism for effectiveness of the introduction program. Further, explicit objectives for the conservation efforts are defined and the associated dates for achieving them are stated. Quantifiable, scientifically valid parameters are identified that will help demonstrate

achievement of the objectives. Finally, Newhall Land has funded an endowment for the initial implementation of the 2017 CCA. For ongoing (in-perpetuity) management and monitoring associated with the CCA, Newhall Land has committed to fund additional endowments. Input from the Spineflower Adaptive Management Working Group, which is already in place, will be sought to guide the management, monitoring, and planning activities of the adaptive management program of the conservation efforts.

In conclusion, we have a high level of certainty that the conservation measures in the 2017 CCA will be implemented (for those measures not already begun) and effective, and thus they can be considered as part of the basis for our final listing determination for *Chorizanthe parryi* var. *fernandina*.

#### **Summary of Comments and Recommendations**

In the proposed rule published on September 15, 2016 (81 FR 63454), we requested that all interested parties submit written comments on the proposal by November 14, 2016. We also contacted appropriate Federal and State agencies, Tribes, scientific experts and organizations, and other interested parties and invited them to comment on the proposal. On July 19, 2017, we published a 6-month extension of the final determination on the proposed threatened status for *C. parryi* var. *fernandina* (82 FR 33035) and reopened the comment period on the proposal for an additional 30 days, ending August 18, 2017. On November 13, 2017, we published a document (82 FR 52262) that again reopened the comment period on the September 15, 2016, proposed rule for an additional 30 days, ending December 13, 2017, so that interested parties and the public could review and comment on the additional conservation measures provided by the 2017 CCA. During all three comment periods, which totaled 120 days, the Service requested any additional information on the status of *C. parryi* var. *fernandina* or its habitat so that we could

analyze this additional information as part of the final listing process. We did not receive any requests for a public hearing.

During the three comment periods on the proposed rule, we received six peer-review comment letters and four public comment letters on the proposed rule, one public comment letter on the 6-month extension, and five public comment letters on the reopening of the comment period for the 2017 CCA directly addressing the proposed listing of *Chorizanthe parryi* var. *fernandina*. Submitted comments were both for and against listing the species. We also received comments that were not related to the proposed listing of *Chorizanthe parryi* var. *fernandina*. All substantive information provided during the comment periods has either been incorporated directly into this withdrawal or is addressed below.

#### *Peer Review*

The purpose of peer review is to ensure that our analysis of the information and assumptions used for listing determination is scientifically sound. In accordance with our peer review policy published on July 1, 1994 (59 FR 34270), we solicited expert opinion from six independent specialists with scientific expertise in the biology of *Chorizanthe parryi* var. *fernandina* biology, habitat, physical or biological factors, or threats. We received responses from all six peer reviewers. We reviewed the comments we received from the peer reviewers for substantive issues and new information regarding the listing of *C. parryi* var. *fernandina*. Peer reviewer comments are addressed in the following summary and incorporated into this withdrawal document as appropriate.

*Comment (1)*: Three peer reviewers stated that Argentine ants are likely to impact *C. parryi* var. *fernandina* pollinators at Newhall Ranch, which could result in a species-level threat to the reproductive potential of the plant. Given potential ant control methods in existence, the

peer reviewers recommended that qualified pest control professionals and conservation managers be allowed to review and approve any control or mitigation plan. They stated that, for such a plan to be effective, it will require constant vigilance and a substantial financial investment.

*Response:* In our proposed rule (81 FR 63454; September 15, 2016), we determined that loss of habitat and individuals and the associated edge effects (i.e., proliferation of Argentine ants) at the Santa Clarita population are likely to decrease habitat quality, reducing resiliency at this population. The additional conservation areas that will be established as part of the CCA, including the three additional conservation areas totaling approximately 825 ac (334 ha) that are contiguous with or adjacent to the existing San Martinez Grande and Potrero spineflower preserves established under the SCP (all of which would be considered part of the Santa Clarita population), are intended to buffer the Santa Clarita population from detrimental effects of loss of habitat and individuals and the associated edge effects, including Argentine ant invasion.

As of February 2016, Argentine ants were present within two preserves at the Santa Clarita population, Entrada and Potrero (Dudek 2016, pp. 17, 20). Therefore, the additional conservation area adjacent to the existing Potrero preserve is at risk of invasion by Argentine ants. However, the two additional conservation areas adjacent to the existing San Martinez Grande preserve are farther from existing or proposed development (see Figure 2, below). None of the adjacent land uses near San Martinez Grande poses a heightened threat of Argentine ant invasion (Dudek 2016, p. 6); therefore, these additional conservation areas are not expected to be at risk of invasion of Argentine ants and should contribute to *C. parryi* var. *fernandina* numbers and recruitment at the Santa Clarita population.

The 2017 CCA requires that annual Argentine ant monitoring be conducted as part of the ongoing habitat maintenance and describes appropriate control measures consistent with the

Argentine Ant Control Plan for Newhall Ranch (Dudek 2014, entire). If Argentine ants invade, Newhall Land proposes control methods as part of an integrated pest management plan, which will be both to remove Argentine ants and mitigate for the absence of native pollinators within the preserves (Dudek 2014c, pp. 25–42). Qualified pest control professionals and conservation managers will review and approve any control or mitigation plan. The endowment associated with long-term management and monitoring of the additional conservation areas would provide the substantial financial investment needed to implement this plan.

*Chorizanthe parryi* var. *fernandina* introduction sites in the 2017 CCA outside of the Santa Clarita population include an additional conservation area of 357 ac (114 ha) located in the Simi Valley watershed on the southern boundary of Newhall Land property in Ventura County; an additional conservation area of approximately 316 ac (128 ha) located on Newhall Land property in the Castaic Mesa area in northern Los Angeles County, near a known extirpated population location; and an additional conservation area located in a 7-ac (2.8-ha) portion of the Petersen Ranch Mitigation Bank adjacent to Elizabeth Lake, also near a known extirpated population location. Argentine ants are not considered to be a significant long-term risk to *C. parryi* var. *fernandina* at these introduction sites because the sites are all well separated from areas supporting potential source populations of Argentine ants, such as urban development areas.

*Comment (2):* Two peer reviewers questioned the available data on *C. parryi* var. *fernandina* pollinators and suggested that experiments should be done to determine: (a) If *C. parryi* var. *fernandina* can effectively self-pollinate, (b) if the plants make seeds when pollinators are excluded, (c) whether seeds produced by self-pollination suffer inbreeding

depression compared to seeds produced by out-crossing, and (d) how much nectar or other rewards the flowers offer to pollinators.

*Response:* A wide range of arthropods have been observed visiting flowers in the vicinity of *C. parryi* var. *fernandina* plants in the field. Jones *et al.* (2009) conducted a series of dawn-to-dusk surveys at Laskey Mesa in 2001, and at Santa Clarita in 2004. During these surveys, more visits were made to plants by the pyramid ant (*Dorymyrmex insanus*) than any other ant taxon; the southern fire ant (*Solenopsis xyloni*) visited in much smaller numbers; and little red ant (*Forelius mccooki*) was an important visitor at the Santa Clarita populations (Jones *et al.* 2010, p. 165).

Jones *et al.* (2010) examined the effects the pyramid ant on spineflower seed production at Ahmanson Ranch with an exclusion study. They found that fruit set was 57 percent higher in flowers exposed to ant visitation, compared to 27 percent in control flowers where ants were excluded. Data indicate that 27 percent of seed set occurred where all potential pollinators were excluded, suggesting that SFVS is not productive at self-pollination (Jones *et al.* 2010, p. 166). This would seem to indicate that the viability of seeds produced by self-pollination is much lower than those produced by the cross-pollinating actions of ants and other insect pollinators, and may reflect inbreeding depression in self-produced seeds.

*Comment (3):* One peer reviewer stated that *C. parryi* var. *fernandina* seeds are not likely prompted to germinate by smoke or other features of fire, but that this needs to be studied more specifically. Also, studies should be done to determine how long seeds last and what proportion of seeds germinate under various conditions. This information is needed to successfully introduce or reintroduce *C. parryi* var. *fernandina* into additional sites near existing or historical sites.

*Response:* *C. parryi* var. *fernandina* is typical of many winter-spring native annuals that occur in the Mediterranean climate of California. Germination occurs following the onset of sufficient late-fall and winter rains and typically represents different cohorts from the seed bank. Because *C. parryi* var. *fernandina* is sensitive to annual levels of rainfall, germination of resident seed banks may be low or nonexistent in unfavorable years, with little or no visible aboveground expression of the plant, but a seedbank would be present.

The direct effects of fire on *C. parryi* var. *fernandina* are not known. We stated in the Species Report that seed germination of a related taxa, Parry's spineflower (*C. parryi* var. *parryi*), appears to be inhibited by fire (Ellstrand 1994 and Ogden 1999, in CBI 2000, pp. 4, 13), but despite the inhibitory effect of direct scorching, fire may prove beneficial to *C. parryi* var. *fernandina* by creating openings in ground cover and temporarily reducing competition (CBI 2000, p. 13). We agree that additional research on the *C. parryi* var. *fernandina* seed bank would be useful to inform future efforts to expand existing populations and reintroduce plants to historical sites.

*Comment (4):* One peer reviewer asked if there is evidence that ants secrete a substance that causes pollen grains to burst.

*Response:* Some ants have chemical secretions from the metapleural gland that reduce pollen viability and germination (Beattie *et al* 1984). However, from data presented by Jones *et al.* (2010), it appears to not be a problem for *C. parryi* var. *fernandina*. As noted above, seed production and the seed germination rate were much higher in the presence of ants, indicating that the presence of ant pollinators actually increases the viability of the seeds. Further, Jones *et al.* (2010) suggest that ant pollination may be more prevalent in drier climates and that ant

production of inhibitory substances may not be a severe limitation to their function as pollinators.

*Comment (5):* One peer reviewer asked if there is adequate management of the State of California's conserved site (Laskey Mesa), and what specific management at this site benefits the spineflower.

*Response:* In 2010, CDFW issued an ITP under CESA to Newhall Land. The ITP requires Newhall Land to provide guaranteed long-term funding for the management of the *C. parryi* var. *fernandina* population at Laskey Mesa (CESA ITP# 2081-2008-012-05) (CDFG 2010, p. 17; Newhall Land and Dudek 2014, entire). On September 25, 2014, Newhall Land made the required deposit for the endowment at Laskey Mesa (K. Drewe 2016b, pers. comm.). Newhall Land cannot withdraw the funding for this account, and there is nothing in the ITP that would allow the funding to be returned to Newhall Land (K. Drewe 2016a, b, pers. comm.).

The CDFW, SMMC, and National Fish and Wildlife Foundation will execute the agreement that requires the endowment be spent for the conservation and management of *C. parryi* var. *fernandina* at Laskey Mesa (K. Drewe 2016a, b, pers. comm.; Newhall Land and Dudek 2014, entire). The August 2014 PAR and September 2014 memorandum completed by Dudek (Newhall Land and Dudek 2014, entire) contains the management activities for *C. parryi* var. *fernandina* at Laskey Mesa (CDFW, in litt. 2016). The endowment is to be used for on-the-ground activities that include research studies, fencing, weeding, surveys, annual reports, and other activities that will benefit the plant. The agreement between CDFW and SMMC that would allow SMMC access to the endowment funds is currently undergoing internal review within CDFW.

*Comment (6):* One peer reviewer pointed out that while the SCP provides for a number

of preserves to be established, some of the preserves do not afford great protection for the spineflower. For example, the proposed preserve area at Entrada shows that a large portion of the spineflower patches are located within a utility easement. Plants could easily be destroyed by large equipment activity in the easement.

*Response:* The Entrada preserve is connected to open space via an existing and frequently-maintained utility corridor. There may be risk to these plants from large equipment. This is one reason why it is important to establish additional *C. parryi* var. *fernandina* occurrences at the Santa Clarita population, including three additional conservation areas totaling approximately 825 ac (334 ha) that are contiguous with or adjacent to the existing San Martinez Grande and Potrero preserves. These areas are intended to expand the area of protected conservation land for *C. parryi* var. *fernandina* and increase the extent of protected occurrence locations within the Santa Clarita population.

*Comment (7):* One peer reviewer suggested that we might have conducted our assessment of the current impact level of development on *C. parryi* var. *fernandina* over a wider geographic area, to encompass its former geographic range. The peer reviewer emphasized that it is clear that habitat loss and other factors associated with development (agricultural and urban) are the reasons *C. parryi* var. *fernandina* now occurs in just two localities at the edge of the Los Angeles metropolitan area. Moreover, all of the stressors discussed in the proposed listing document have strong links to development.

*Response:* *C. parryi* var. *fernandina* is currently known from only two populations in southern California that are 17 mi (27 km) apart, one in Ventura County (Laskey Mesa population) and one in Los Angeles County (Santa Clarita population). Historically, the plant was known from no fewer than 10 additional locations in Los Angeles and Orange Counties.

However, the scope of our stressor analysis was only the two extant populations because there is limited value in evaluating the potential for stressors in areas where the species is no longer considered extant. We presented our analysis of threats to the existing populations in our Species Report. Currently, there is no threat of development and there will be no development in the future at Laskey Mesa because the property is owned and managed by the SMMC and the MRCA.

Development was considered a future threat to the Santa Clarita population. However, the additional conservation areas proposed in the CCA are intended to further increase the number and extent of *C. parryi* var. *fernandina* within its historical range, which will reduce the threat of development at this population. We considered whether there are any known threats or potential stressors to the spineflower on these additional conservation areas, and determined them to be suitable for *C. parryi* var. *fernandina*. All of these will be in permanent conservation where development will be precluded.

*Comment (8):* One peer reviewer stated that the open structure of the vegetation in which *C. parryi* var. *fernandina* occurs suggests that external effects are likely to penetrate deeply into patches. The very small stature of *C. parryi* var. *fernandina* plants makes them likely to be especially vulnerable to disturbances such as trampling and erosion. Therefore, it seems likely that recreational impacts on the species will increase, particularly in Santa Clarita, where the proximity to high densities of humans will increase in the proposed developments.

*Response:* We recognize edge effects of increased trampling and soil compaction from recreation. Recreation has minimal direct effects on *C. parryi* var. *fernandina* habitat because recreation does not occur in the same areas where *C. parryi* var. *fernandina* occurs. Even though the plant is small in stature and may grow in open areas, such as old roads, making it vulnerable

to trampling, there are currently no trails that overlap the plant's occurrences, and we do not expect trails to overlap the plant's occurrences in the future. Additionally, all additional conservation areas provided for in the 2017 CCA will be closed to the public.

*Comment (9):* One peer reviewer questioned our assessment that the impact of invasive, nonnative plants on *C. parryi* var. *fernandina* will decrease with time from moderate today to low in the future, as a result of ecological restoration plans at the Santa Clarita population.

*Response:* Nonnative, invasive plants are abundant at Laskey Mesa and Santa Clarita, and reduce available habitat. They compete with *C. parryi* var. *fernandina* for light, water, and soil nutrients; increase potential for wildfire; and alter pollinator communities. The August 2014 PAR and September 2014 memorandum outline the management activities to be undertaken at Laskey Mesa for *C. parryi* var. *fernandina*. The funding for these actions is set aside in the form of a non-wasting endowment. The endowment will fund on-the-ground activities, such as weeding and other methods to control the impacts of nonnative invasive plants. We anticipate that MRCA will address the abundance of nonnative vegetation at Laskey Mesa once they implement the management activities for *C. parryi* var. *fernandina* at that site.

At the Santa Clarita site, development of Newhall Ranch would remove ground coverage of nonnative plants. However, part of this development will create urban edges that would border some of the preserves. Nonnative weedy species are often edge species and become more prevalent or increase in abundance to the detriment of native species. Therefore, Newhall Land has proposed to restore *C. parryi* var. *fernandina* habitat and implement measures as part of the development of Newhall Ranch to reduce the abundance and impact of nonnative vegetation at this site. Overall, nonnative, invasive plants currently act as a moderate-level stressor to *C. parryi* var. *fernandina* and its habitat. The management activities at Laskey Mesa and the

conservation measures at Santa Clarita are likely to reduce the direct impact of nonnative, invasive plants to a low-level stressor. The enhancement areas surrounding the 2017 CCA introduction sites are intended to help minimize invasion of nonnative plant species, which could degrade the quality of the habitat for *C. parryi* var. *fernandina* occupation in the additional conservation areas.

*Comment* (10): One peer reviewer questioned our prediction that future fire effects will be low. The proposed plan for development in Santa Clarita will put *Chorizanthe parryi* var. *fernandina* within the urban-wildland interface and thereby should increase the potential for fire to affect population patches.

*Response:* We anticipate that wildfire will occur in the future, based on the historical fires that have occurred in these areas and because wildfire is a natural phenomenon in southern California. Additionally, both populations are surrounded by residential and commercial developments, and fire frequency tends to increase at the urban-wildland interface (Dudek 2010a, p. 136). Furthermore, due to climate change, drier conditions may result (PRBO Conservation Science 2011, pp. 41–42). However, because the fire intervals at these two populations have been relatively short in recent history, we do not anticipate an increased fire frequency at Laskey Mesa or Santa Clarita.

At Santa Clarita, proposed development in the area will break up large expanses of potential fuels and may reduce the risk of wildfire, but human-caused ignition may increase with increasing human presence and traffic. However, fire protection in the surrounding areas is also expected to increase because of the need to avoid loss of life and property; therefore, it is anticipated that any fires in the SCP preserves will be lighter rather than heavier in intensity (Dudek 2010a, p. 136). In addition, if fire-control lines or other forms of bulldozer damage occur

within the preserves, Newhall Land proposed to repair and revegetate these areas to pre-burn conditions (Dudek 2010a, pp. 135-137). In our assessment of climate change, we analyze that drier conditions in the future may result in increased fire frequency, making the ecosystems in which a species currently grows more vulnerable to threats of nonnative plant invasion.

The December 2017 Rye Fire burned four out of seven of the SCP preserves on Newhall Ranch. The intensity of the fire was diagnosed as being light (Watershed Emergency Response Team 2018, pp. 18-20). Numerous previous wildfire events have occurred on Newhall Ranch since 1913, including at least 12 since 1983 (excluding the 2017 Rye Fire), and several of these fires have affected extensive areas of habitat occupied by the spineflower (Dudek 2017, p. 10). *Chorizanthe parryi* var. *fernandina* monitoring began on Newhall Ranch in 2002. Two fires have affected the Santa Clarita population since then. The 2003 Verdale Fire burned the Homestead North Project Site, including almost the entire San Martinez Grande preserve. The 2007 Magic Fire burned portions of the Grapevine Mesa and Entrada preserves. Both the 2003 Verdale Fire and the 2007 Magic Fire occurred in October, after spineflower surveys had been conducted for that year. The biggest concern is that fire may promote the invasion and spread of nonnative, invasive grasses that outcompete small native annuals like *C. parryi* var. *fernandina*.

Monitoring conducted under the SCP will continue to evaluate the performance of *C. parryi* var. *fernandina* within the SCP preserves, and if the monitoring shows that management is needed to address direct or indirect effects of the fire, such as an increase in nonnative, invasive grasses, measures will be incorporated into annual work plans as required by the SCP and reviewed by the Spineflower Adaptive Management Working Group. The primary management activities we anticipate to occur post-fire in the SCP preserves involves monitoring and

controlling weeds that may invade burned areas following a fire event, specifically if weeds exceed 30 percent relative cover (Dudek 2017, p. 7).

*Comment* (11): One peer reviewer noted that because the historical range of *C. parryi* var. *fernandina* has been reduced, and now the plant has only two isolated populations, the plant's heterozygosity (having a varied genetic makeup) may be considerably reduced.

*Response:* While we agree that *C. parryi* var. *fernandina* likely has reduced heterozygosity due to a reduced range as compared to the historical distribution, the genetic characteristics have not been investigated. Dr. Deborah Rodgers is currently conducting research into genetic structure of *C. parryi* var. *fernandina* and potential degree of inbreeding depression (Dudek 2015, p. 2; Dudek 2016c, p. 9).

*Comment* (12): One peer reviewer pointed out that nitrogen deposition associated with fossil fuel combustion is a potential stressor to *C. parryi* var. *fernandina*, and this was not discussed in the Species Report. Several recent studies have shown that nitrogen can have important consequences to native and nonnative plant species in southern California although there is no information available about how nitrogen deposition has affected *C. parryi* var. *fernandina* and its ecosystem.

*Response:* Because there is no information available about how nitrogen deposition has affected *C. parryi* var. *fernandina* and the ecosystem it occupies, we did not analyze it in our stressor analysis.

*Comment* (13): One peer reviewer stated that Newhall Land may have destroyed *C. parryi* var. *fernandina* subpopulations on Newhall Ranch lands in the past, and investigations were purported to be initiated by CDFW into possible violation. This resulted in an agreement by

Newhall to actively manage and restore *C. parryi* var. *fernandina* habitat. However, the reviewer did not believe any of these restoration and management activities have been initiated.

*Response:* There was a 2003 settlement agreement executed between Newhall Land and CDFW following an onsite investigation that occurred in 2002. This resulted in establishing two permanent conservation easements, one at Airport Mesa and one at Grapevine Mesa, totaling approximately 64 ac (26 ha). The settlement agreement required that a management plan for the plant be prepared, funded, and implemented in those two areas as mitigation for impacts affiliated with that investigation.

*Comment (14):* One peer reviewer stated that creating small rare plant preserves under the SCP has the potential to reduce long-term success to maintain a viable population into the future, as this eliminates connectivity to adjacent habitats to which populations might have migrated, beyond the borders of the preserve boundaries.

*Response:* The 2017 CCA establishes additional *C. parryi* var. *fernandina* occurrences at the Santa Clarita population, including three additional conservation areas totaling approximately 825 ac (334 ha) that are contiguous with or adjacent to the existing San Martinez Grande and Potrero preserves established under the SCP. This will allow *C. parryi* var. *fernandina* populations to expand into the area of protected conservation land, and increase the extent of protected spineflower occurrence locations within the Santa Clarita population.

*Comment (15):* One peer reviewer stated that there are six other species in the genus *Chorizanthe* in California that have been listed under the Act as endangered species, all of which have larger populations than *C. parryi* var. *fernandina*. The Service's listing of these other plants as endangered has established a precedent for endangered plants of this genus.

*Response:* The Service evaluates each species individually, using the best available scientific and commercial information on that species, in making a listing determination. There are many factors and reasons why a determination for one species may be different than that for another species. The fact that a species has been determined to be endangered under the Act does not mean that other species within the same genus also automatically meet the Act's definition of endangered.

*Comment (16):* One peer reviewer stated that the introduction plan provided for by the 2017 CCA is more appropriately addressed under a *C. parryi* var. *fernandina* recovery plan than as part of the proposed listing rule. The success or failure of the proposed plan will likely require decades to determine. The use of positive outcomes can only occur after a measured success. Since the effectiveness of proposed conservation measures cannot be evaluated for many years, it is premature to rely on potential future success of these measures when determining the vulnerability of *C. parryi* var. *fernandina*.

*Response:* We stated in the proposed rule (81 FR 63454, September 15, 2016, see p. 63458) that we will formally evaluate all measures included in Newhall Land's conservation strategy using PECE before making our final determination of the status of the plant. In determining whether a formalized conservation effort contributes to forming a basis for not listing a species, or for listing a species as threatened rather than endangered, we must evaluate whether proposed conservation efforts improve the status of the species under the Act. Two factors are key in that evaluation: (1) For those efforts yet to be implemented, the certainty that the conservation effort will be implemented; and (2) for those efforts that have not yet demonstrated effectiveness, the certainty that the conservation effort will be effective. In our PECE analysis of the 2017 CCA for the spineflower, we found that there is a high degree of

certainty that the conservation measures under the plan will be implemented, and a high degree of certainty that the conservation measures will be effective. Please see the full PECE analysis at <http://www.regulations.gov> at Docket No. FWS–R8–ES–2016–0078.

#### *Public Comments*

*Comment (17):* One commenter stated that McGraw (2012) found a strong positive correlation between percentage of the mapped cumulative footprint supporting *C. parryi* var. *fernandina* in a given year and total annual rainfall. However, the data of acres occupied annually by *C. parryi* var. *fernandina* demonstrate that there is no apparent overall increase or decreasing trend over the last 17 years; therefore, there is no reason to expect a trend change in the next 25 years based on the best available information.

*Response:* Interannual variability in total annual rainfall is a major driver of the variability in *C. parryi* var. *fernandina*'s distribution, but additional factors, including temperature, timing of precipitation in fall or winter, and drought, may also play a role (McGraw 2012, p. A-6). The proposed development of Newhall Ranch would directly remove 25 percent of the *C. parryi* var. *fernandina* population at Santa Clarita, and the vast majority of the remaining 75 percent of this population would be surrounded and bordered by residential and commercial development. While the data may not show a trend over the survey period, reducing the population by 25 percent and fragmenting the remaining populations introduces new stressors into the population that will affect the persistence of the plant over the next 25 years at this population.

The 2017 CCA establishes additional *C. parryi* var. *fernandina* occurrences at the Santa Clarita population, including three additional conservation areas totaling approximately 825 ac (334 ha) that are contiguous with or adjacent to the existing San Martinez Grande and Potrero

preserves established under the SCP. These areas are intended to expand the area of protected conservation land for *C. parryi* var. *fernandina* and increase the extent of protected occurrence locations within the Santa Clarita population to buffer it from the detrimental effects of loss of habitat and individuals and the associated edge effects, which should increase persistence of the plant over the next 25 years at this population.

*Comment* (18): One commenter stated that the Species Report overstates the extent to which habitat fragmentation will affect *C. parryi* var. *fernandina*. The commenter stated that *C. parryi* var. *fernandina* preserves and large, connected open spaces within and around the Newhall Land property development areas will preserve connectivity for mobile pollinators such as honeybees and potential seed dispersers, maintaining opportunities for genetic exchange between preserves. *C. parryi* var. *fernandina* preserve management, including habitat restoration and enhancement, will maintain and enhance floral and other habitat resources in the preserves for pollinators and seed dispersers.

*Response*: Development of Newhall Ranch will remove some occurrences that connect, or are intermittent between, the larger concentrations of *C. parryi* var. *fernandina* in the designated preserves. Removing some of the smaller scattered populations outside the preserves will likely make the distances between remaining concentrations of *C. parryi* var. *fernandina* larger and make the habitat that supports the plant more isolated. However, the implementation of the 2017 CCA will establish additional *C. parryi* var. *fernandina* occurrences at the Santa Clarita population, including three additional conservation areas totaling approximately 825 ac (334 ha) that are contiguous with or adjacent to the existing San Martinez Grande and Potrero preserves established under the SCP. These expansion areas will aid connectivity of populations, as well as establish new populations.

*Comment (19):* Future habitat conditions in *C. parryi* var. *fernandina* preserves will generally be resistant to permanent Argentine ant invasions. Consequently, there is little risk of long-term infestation by Argentine ants in numbers sufficient to permanently displace arthropods that provide pollinator and seed dispersal services.

*Response:* Our analyses in the Species Report indicate that if Argentine ants invade an area, they are likely to permanently displace arthropods that provide pollinator and seed dispersal services (Service 2016, pp. 44-62). Argentine ants are present on Newhall Ranch in at least two SCP preserves (Entrada and Potrero), and within the open space that acts as a corridor between the SCP preserves, the Santa Clara River (Dudek 2016b, pp. 17, 20). It is therefore reasonable to assume that conditions are currently suitable for Argentine ants within at least two preserves. Argentine ants are assumed to be present throughout the development and are expected to be present in the open areas adjacent to the preserves in the future post-development (Dudek 2010a, p. 130). Also, Dudek (2016b, pp. 5-18) states that five out of the seven SCP preserves (82 percent of the total preserve area) have a “high potential for serious encroachment or invasion of Argentine ants” given current and proposed adjacent land uses.

The 2017 CCA states that annual Argentine ant monitoring will be conducted as part of the ongoing habitat maintenance, and appropriate control measures consistent with the Argentine Ant Control Plan for Newhall Ranch (Dudek 2014, entire) will be implemented in the event that invasion occurs. If Argentine ants invade, Newhall Land proposes control methods as part of an integrated pest management plan to remove Argentine ants and mitigate for the absence of native pollinators within the preserves (Dudek 2014c, pp. 25–42). Qualified pest control professionals and conservation managers will review and approve any control or mitigation plan. Argentine ants are not considered to be a significant long-term risk to *C. parryi* var. *fernandina* at the

introduction sites outside the Santa Clarita population because they are all well separated from areas supporting potential source populations, such as urban development areas.

*Comment (20):* One commenter stated that in the proposed rule (81 FR 63454; September 15, 2016), the Service's conclusion that there may not be sufficient redundancy to sustain *C. parryi* var. *fernandina* over the long term is overstated, because evidence indicates the long-term threats to redundancy can be effectively managed through habitat restoration in the preserves, management of Argentine ants, and introduction of *C. parryi* var. *fernandina* into non-preserve areas.

*Response:* Redundancy does not just refer to the population at Santa Clarita but refers to the ability of a species to compensate for fluctuations in or loss of populations across the species' range such that the loss of a single population has little or no lasting effect on the structure and functioning of the species as a whole. Multiple interacting populations across a broad geographic area provide insurance against the risk of extinction caused by catastrophic events. Because historically there were no fewer than 10 additional populations across Los Angeles and Orange Counties in Southern California, and currently there are 2 populations, redundancy is decreased for *C. parryi* var. *fernandina*. If either of the two extant populations were permanently lost, the redundancy would be further lowered, thereby decreasing the plant's chance of survival in the face of potential environmental or demographic stochastic factors and catastrophic events (e.g., wildfire, extreme drought).

The additional conservation areas proposed in the 2017 CCA are intended to increase the number and extent of *C. parryi* var. *fernandina* populations within its historical range and increase redundancy. The CCA provides for Newhall Land to introduce *C. parryi* var. *fernandina*

within portions of the additional conservation areas with the goal of establishing at least two new self-sustaining, persistent occurrences to increase the redundancy of the species.

*Comment (21):* One commenter stated that the seven *C. parryi* var. *fernandina* preserves will help maintain the existing representation of the plant on Newhall property. Likewise, the endowment for management of the Laskey Mesa population will also contribute to continued representation of that population.

*Response:* Representation refers to a species' ability to adapt to changing environmental conditions, which is a species' adaptive capacity. Representation is characterized by the breadth of genetic and environmental diversity within and among populations; this can be related to the distribution of populations within the variation in a species' ecological settings. Historically, there were no fewer than 10 *C. parryi* var. *fernandina* populations across southern California, representing at least five ecoregions of the conterminous United States. Ecoregions denote areas of general similarity in ecosystems through analysis of patterns of biotic and abiotic phenomena, including geology, physiography, vegetation, climate, soils, land use, wildlife, and hydrology. Currently, there are only two *C. parryi* var. *fernandina* populations, 17 mi (27 km) apart, representing only one ecoregion.

The goal of the 2017 CCA is to establish at least two new self-sustaining, persistent *C. parryi* var. *fernandina* occurrences, at least one of which will be in a different ecoregion from the existing populations to increase the number of ecoregions in which the plant is represented. The two existing *C. parryi* var. *fernandina* populations are located in the Venturan-Angelino Coastal Hills ecoregion. The additional conservation area in the Castaic Mesa area in northern Los Angeles County, near a known extirpated population location, is within the Southern California Lower Montane Shrubland Woodland ecoregion. The additional conservation area located in the

Petersen Ranch Mitigation Bank adjacent to Elizabeth Lake near a known extirpated population location is within the Arid Montane Slopes ecoregion. Establishing at least two new self-sustaining, persistent *C. parryi* var. *fernandina* occurrences where at least one is in a different ecoregion from the existing populations may improve the ability of the plant to adapt to changing environmental conditions into the future.

*Comment (22):* One commenter stated that long-term establishment of *C. parryi* var. *fernandina* is feasible. Efforts to do so will require a commitment to significant planning, resources, ongoing scientific observation and study, adaptive management, and incorporation of most current plant and environmental science. Constraints to establishment of new populations of *C. parryi* var. *fernandina* include: (a) Availability of seed source due to physical and morphological reasons; (b) availability of land in the historical range of the plant that is not already developed or threatened by encroachment of nonnative and invasive species; (c) presence of appropriate climatic and hydrologic conditions (hot and dry with seasonal drought conditions and no irrigation); (d) presence of specific soil types and geomorphological conditions (including specific substrate, elevation, and aspect); (e) minimal environmental threats; and (f) availability of arthropods that can facilitate pollination to ensure higher achene (seed head) set and ensure genetic diversity.

*Response:* The 2017 CCA includes a commitment to significant planning, resources, ongoing scientific observation and study, adaptive management, and incorporation of most current plant and environmental science. Newhall Land will cause permanent conservation instruments to be recorded over each of the additional conservation areas in which *C. parryi* var. *fernandina* is established to ensure that the habitat values for the species are maintained, minimizing environmental threats. Newhall Land will fund all initial habitat enhancement and *C.*

*parryi* var. *fernandina* introduction activities within the additional conservation areas, and will fund one or more endowments to provide perpetual management and monitoring within the additional conservation areas.

To address availability of seed source, it is anticipated that there will be opportunities for topsoil salvage from *C. parryi* var. *fernandina* occupied areas within the proposed developments on Newhall Land property at the Santa Clarita population. In addition, a phased approach will provide lead time to conduct wild seed collections (and to grow these seeds in a controlled nursery setting to bulk seed, if necessary) to acquire the necessary seed resources to implement *C. parryi* var. *fernandina* introduction in the various areas.

To address the need for appropriate climatic and hydrologic conditions and the presence of specific soil types and geomorphological conditions, the additional conservation areas were selected based on proximity to extant *C. parryi* var. *fernandina* populations, proximity to extirpated historical locations, availability of undeveloped open space, surrounding land uses, and land ownership. Some other areas were considered, but rejected due to lack of conserved open space, unsuitable conditions, or untenable land ownership situations. Once potential sites were identified, the sites that best met the identified parameters that appear to favor occupation by *C. parryi* var. *fernandina* were chosen. Site selection relied heavily on the results of a habitat characterization study, which compared occupied and unoccupied areas within coastal scrub and annual grassland, to identify characteristics of occupied *C. parryi* var. *fernandina* habitat. In addition to selecting what appeared to be the most suitable sites, the approach in the 2017 CCA is to assist *C. parryi* var. *fernandina* during the early establishment period in order to help the introduced population develop a foothold through habitat enhancement, ultimately resulting in at least two new self-sustaining, persistent populations.

*Comment (23):* One commenter stated that Newhall Land appears to have begun vegetation clearing on the project site where *Chorizanthe parryi* var. *fernandina* is located. The commenter does not believe that such actions comply with the rules and regulations of the Act.

*Response:* Section 7 of the Act provides a mechanism for identifying and resolving potential conflicts between a proposed action and a species proposed for listing at an early planning stage. While consultations for listed species are required when the proposed action may affect listed species, a conference is required only when the proposed action is likely to jeopardize the continued existence of a species proposed for listing.

The Final Environmental Impact Statement (EIS)/Environmental Impact Report (EIR) for the Newhall Ranch Resource Management and Development Project included detailed analysis of the direct, indirect, and cumulative impacts of the proposed discharges of fill material in waters of the United States and associated upland development activities on *C. parryi* var. *fernandina* and included mitigation measures to avoid, minimize, and compensate for impacts to the plant. Subsequent to the Final EIS/EIR, Newhall Land agreed to implement additional measures to further compensate for unavoidable impacts to *C. parryi* var. *fernandina* as documented in the 2017 CCA. In consideration of the additional conservation areas and *C. parryi* var. *fernandina* introduction sites required as part of the CCA, the U.S. Army Corps of Engineers made a final determination that permit no. SPL-2003-01264 would not jeopardize the continued existence of *C. parryi* var. *fernandina* and is not required to complete a conference opinion to comply with the requirements of the Act.

*Comment (24):* One commenter stated that the Rye Fire in Santa Clarita, which began on December 5, 2017, has apparently burned at least five of the proposed seven conservation areas for *C. parryi* var. *fernandina* and possibly all those located on the Mission Village project. The

commenter stated that it is important to determine whether native pollinator arthropods survived the fire. The commenter urged a delay and extension of the comment period so that the effect of this fire on *C. parryi* var. *fernandina* could be investigated.

*Response:* The December 2017 Rye Fire burned four out of seven of the SCP preserves on Newhall Ranch. Based on prior research, we expect relatively minor effects from the Rye Fire on arthropods that could be spineflower pollinators. Jones *et al.* (2004) conducted pollinator studies on spineflower populations on Newhall Ranch and Ahmanson Ranch, and found that one of the dominant floral visitors on Newhall Ranch was little red ant and the dominant floral visitors at the Ahmanson Ranch were two species of ants: the pyramid ant and the southern fire ant. Matsuda *et al.* (2011, entire) investigated the effect of broad-scale wildfire on ground foraging ants within southern California. They found a net negative effect of fire on the overall diversity of ground foraging ants likely because of changes in community structure rather than the loss of species richness. Although they found a negative effect of fire on ant diversity, the increases in overall species diversity in both the fire-impacted and reference plots suggest that ground-foraging ants may be relatively resilient to fire because only about 2 percent of an ant colony is active on the surface, thus limiting direct mortality. They also suggest that unburned patches within a burn area can provide refuge for ants and source populations for recolonization of burned areas.

The intensity of the Rye Fire on Newhall Ranch was diagnosed as light (Watershed Emergency Response Team 2018, pp. 18-20). Based on field testing, the California Geological Survey found that within the mapped fire perimeter, 64 percent of the area was classified as very low/unburned, 34 percent as low, and 2 percent as moderate; no area was classified as high (Watershed Emergency Response Team 2018, pp. 18-20). The severity of the Rye Fire was

similar to or generally less than the most recent fires on Newhall Ranch in *C. parryi* var. *fernandina* habitat, the 2003 Verdale Fire and 2007 Magic Fire. Severity in burn areas was generally low in the Magic Fire and very low to moderate in the Verdale Fire (Dudek 2017, p. 10). We were able to investigate the effect of the fire on the plant and its pollinators within the allotted timeframe, and therefore we do not need to extend the comment period on the proposal.

*Comment (25):* One commenter stated that throughout the 2017 CCA there are definitive statements that the proposed actions will result in the establishment of new populations and reduce or eliminate threats to *C. parryi* var. *fernandina*. The commenter states that the plan will attempt to establish populations and hopefully provide protective measures, but that the proposed conservation efforts cannot be considered as guarantees. The commenter concluded that the 2017 CCA should not be used to determine the current status of *C. parryi* var. *fernandina*.

*Response:* PECE (68 FR 15100, March 28, 2003) ensures consistent and adequate evaluation of recently formalized, but not yet implemented conservation efforts when making listing decisions. The policy provides guidance on how to evaluate conservation efforts that have not yet been implemented or have not yet demonstrated effectiveness. The evaluation focuses on the certainty that the conservation actions will be implemented and effective.

Using the criteria specified in PECE, we evaluated the certainty of future implementation and certainty of effectiveness of the 2017 CCA. Based on our evaluation, we have a high level of certainty that the conservation actions will be effectively implemented and, therefore, should be considered as part of the basis for our final listing determination for *C. parryi* var. *fernandina*. Please see the full PECE analysis at <http://www.regulations.gov> at Docket No. FWS-R8-ES-2016-0078.

*Comment (26):* One commenter noted that after the proposed rule was published, an activity occurred at the Laskey Mesa population that threatens the continued existence of *C. parryi* var. *fernandina*. This activity was permitted by the managing agency.

*Response:* We assume that the recent activity to which the commenter refers is a fashion show that occurred on May 11, 2017. Our understanding is that MRCA permitted approximately 2.5 ac (1 ha) at Laskey Mesa be utilized for the show, but resulting impacts were about 1 ac (.4 ha) larger than planned, and that several aspects of the event were not covered under the permitted activities. The MRCA permit required that there be no disturbance of terrain or indigenous plants. As a result, CDFW sent a letter to the State Wildlife Conservation Board expressing concern over consistency between the funding provided for the purchase of Laskey Mesa and the intended conservation purpose of that funding. There was a follow-up meeting with representatives of CDFW, the State Wildlife Conservation Board, MRCA, and SMMC, in which the same concerns were shared. As a result of the meeting, the State Wildlife Conservation Board, MRCA, and CDFW agreed to develop a strategy so that concerns regarding the conservation of sensitive species are given a more prominent part in the permitting of activities on Laskey Mesa (e.g., sensitive species surveys prior to filming activities). The CDFW is currently working with its partners in developing the strategy. This strategy should be effective in preventing further variances from permitted activities that might affect *C. parryi* var. *fernandina*.

### **Summary of Biological Status and Factors Affecting the Species**

Section 4 of the Act and its implementing regulations (50 CFR 424) set forth the procedures for adding species to the Federal Lists of Endangered and Threatened Wildlife and Plants. A species may be determined to be an endangered or threatened species due to one or

more of the five factors described in section 4(a)(1) of the Act: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence. Listing actions may be warranted based on any of the above threat factors, singly or in combination. Stressors that currently act, or may act, on *C. parryi* var. *fernandina* in the foreseeable future include development (Factors A and E); nonnative, invasive plants (Factors A and E); Argentine ants (Factor E); grazing and agriculture (Factor A); utility line easements and maintenance (Factor A); miscellaneous land use (Factor A); recreation (Factor E); wildfire (Factor E); and climate change (Factors A and E). The effects of these stressors are magnified by virtue of the plant having small population sizes (Factor E). For the purposes of this analysis, we define the “foreseeable future” time period to be 25 years. The basis for this timeframe is that it includes cycles of variation in climate, the potential impacts of the completion of the proposed development of Newhall Ranch, and planned conservation measures for the Laskey Mesa and Santa Clarita populations.

All of these potential stressors are evaluated and presented in our Species Report (Service 2016, pp. 20–78). The best available data indicate that grazing and agriculture, utility line easements and maintenance, miscellaneous land use, and recreation are not resulting in population or rangewide impacts currently or in the future such that they rise to the level of threats to the continued existence of the species. We conclude this because these activities have been or will be removed from most areas that overlap *C. parryi* var. *fernandina*. The remaining stressors—development; nonnative, invasive plants; Argentine ants; wildfire; and potentially climate change—acting on the small isolated populations are described below. We address the

remaining stressors below because we determined in our September 15, 2016, proposed rule (81 FR 63454) that population or rangewide impacts may contribute to, or are likely to contribute to, considerable loss of individuals or habitat currently or in the future. Please refer to the Potential Stressors section in the Species Report (Service 2016, pp. 20–78) for a more detailed discussion of our evaluation of the biological status of the plant and the factors that may affect its continued existence.

#### *Development (Factors A and E)*

Development consists of converting the landscape into residential, commercial, industrial, and recreational features, with associated infrastructure such as roads. Currently, development does not impact *C. parryi* var. *fernandina* at either population. In the future, no development is anticipated at the Laskey Mesa site because the property is owned and managed by the SMMC and MRCA, and preserved as permanent parkland. At the Santa Clarita site, the population is within the footprint of the proposed Newhall Ranch development project.

At the time we issued the proposed rule (81 FR 63454, September 15, 2016), available information indicated that the future development of the proposed Newhall Ranch would directly remove 24 percent of the *C. parryi* var. *fernandina* population and occupied habitat at the Santa Clarita site, reducing the population from approximately 20 ac (8 ha) to 15 ac (6 ha) of cumulative occupied area (Dudek 2010a, Table 12, p. 67). In addition to habitat removal, the proposed development would also create indirect effects by fragmenting the remaining habitat between the occurrences of *C. parryi* var. *fernandina*. The impacts of fragmented habitat include: (1) Edge effects around remaining populations, such as increasing the risk of invasion of nonnative, invasive plants and animals; and (2) further separation of occurrences relative to current conditions because much of the area between the remaining occurrences would be

residential and commercial development (Dudek 2010a, pp. 48–117), potentially affecting pollination and dispersal of the plant (Steffan-Dewenter and Tschamtkke 1999, p. 437; Menges 1991, pp. 158–164; Jennerston 1988, pp. 359–366; Cunningham 2000, pp. 1149–1152). These indirect effects of the proposed development would remain into the future post-construction.

Under the 2010 SCP, Newhall Land Company designated seven spineflower preserves containing approximately 15 ac (6 ha) of *C. parryi* var. *fernandina* occupied area, which is the remaining 76 percent of the Santa Clarita population. Easements and an endowment to manage and monitor the preserves have been put in place. In addition to the preserves designated under the SCP, the 2017 CCA establishes additional *C. parryi* var. *fernandina* occurrences at the Santa Clarita population (Areas 1–3 in Figure 2, above), reducing the overall threat to this population from development. The additional conservation areas at the Santa Clarita population total approximately 825 ac (334 ha) that are contiguous with or adjacent to the existing San Martinez Grande and Potrero preserves established under the SCP. These areas are intended to expand the area of protected conservation land for the plant and increase the extent of protected occurrence locations within the Santa Clarita population to buffer it from detrimental effects of loss of habitat and individuals and the associated edge effects. All of the conservation areas (i.e., preserves under the SCP and occurrences under the 2017 CCA) will be in permanent conservation and will not be directly threatened by development.

Overall, we projected in our September 15, 2016, proposed rule that development at one of the two *C. parryi* var. *fernandina* populations would result in the loss of 24 percent of the Santa Clarita population in the future and that edge effects to the remaining Santa Clarita population were expected. Edge effects around the remaining occurrences put these patches at risk and separate them more than they are under current conditions. However, under the 2017

CCA, abundance and distribution of the plant within the Santa Clarita population will be increased to buffer the population from detrimental effects of loss of habitat and individuals and the associated edge effects of the development. When we issued the proposed rule, we concluded that development was a future population-level threat to the plant, as it would result in loss of habitat and individuals, and further reduce the range of the plant, which was already vulnerable due to its small size and isolated populations (Factor E). Since the publication of the proposed rule, the 2017 CCA was developed and signed, and is being implemented. The 2017 CCA provides support for *C. parryi* var. *fernandina* by further protecting, increasing, and expanding existing and future populations and habitat.

As discussed above, we have determined that the conservation actions outlined in the 2017 CCA are sufficiently certain to be implemented and effective such that they should be considered in our assessment of status. These conservation actions significantly reduce the identified threats, including effects of historical and future loss of habitat from development (Factor A and E), and their impacts to *C. parryi* var. *fernandina* and its habitat. Thus, the best scientific and commercial data available indicate that the effects associated with development are not a threat to the continued existence of *C. parryi* var. *fernandina* now nor will they be in the foreseeable future.

#### *Small, Isolated Populations (Factors E)*

The effects of small, isolated populations include increased risk of extinction from random, naturally occurring events, and potentially reduced genetic variation, which can affect the ability of a species to sustain itself into the future in the face of environmental fluctuations. There are two known populations of *C. parryi* var. *fernandina*, 17 mi (27 km) apart, one at Laskey Mesa and one at Santa Clarita, each comprising approximately 15 to 20 ac (6 to 8 ha) of

occupied area. Historically, the plant was known from no less than 10 additional locations across southern California (see **Figure 1**).

When we issued the proposed rule (81 FR 63454, September 15, 2016), we concluded that having only two small, isolated populations decreased the ability of *C. parryi* var. *fernandina* to sustain itself into the future in the face of environmental fluctuations and random, naturally occurring events. At that time, we determined that this stressor would continue to affect *C. parryi* var. *fernandina* and its habitat at both sites into the future.

Since the publication of the proposed rule, the 2017 CCA was completed, which provides for additional conservation areas that are intended to increase the number and extent of spineflower occurrences within the plant's historic range. The additional conservation areas at the Santa Clarita population, which total approximately 825 ac (334 ha), are contiguous with or adjacent to the existing San Martinez Grande and Potrero preserves established under the SCP. These areas are intended to expand the area of protected conservation land for *C. parryi* var. *fernandina* and increase the extent of protected occurrence locations within the Santa Clarita population to buffer it from detrimental effects of loss of habitat and individuals and the associated edge effects, including Argentine ant invasion.

Introduction sites outside of the Santa Clarita population include an additional conservation area of 357 ac (144 ha) located in the Simi Valley watershed on the southern boundary of Newhall Land property in Ventura County; an additional conservation area of approximately 316 ac (128 ha) located on Newhall Land property in the Castaic Mesa area in northern Los Angeles County, near a known extirpated population location; and an additional conservation area located in a 7-ac (2.8-ha) portion of the Petersen Ranch Mitigation Bank adjacent to Elizabeth Lake, also near a known extirpated population location.

Introduction of *C. parryi* var. *fernandina* at historically occupied but currently extirpated sites and at new sites decreases the risk of having small, isolated populations for *C. parryi* var. *fernandina* into the future. When we issued the proposed rule, we concluded that having small, isolated populations was a current and future population-level threat to the plant (Factor E). Since the publication of the proposed rule, the 2017 CCA was developed and is being implemented to increase future populations and habitats for *C. parryi* var. *fernandina*.

At this time, under PECE, we have determined that the conservation actions outlined in the 2017 CCA are sufficiently certain to be implemented and effective such that they should be considered in our assessment of status. These conservation actions significantly reduce the identified threats, including having small, isolated populations (Factor E), and their impacts to *C. parryi* var. *fernandina* and its habitat. Thus, the best scientific and commercial data available indicate that the adverse effects of small, isolated populations to the continued existence of *C. parryi* var. *fernandina* is not a threat to the continued existence of the plant now nor will it be in the foreseeable future.

#### *Nonnative, Invasive Plants (Factors A and E)*

Nonnative, invasive plants include nonnative vegetation that occurs within or adjacent to habitat that supports *C. parryi* var. *fernandina*. In particular, we focused on the impacts of nonnative grasses and other fast-invading, nonnative annual plants because they are abundant at both sites and are efficient at displacing native vegetation.

When we issued the proposed rule (81 FR 63454, September 15, 2016), we determined that this stressor would likely affect *C. parryi* var. *fernandina* and its habitat at both sites into the future, but at a decreased severity. Newhall Land provided funding for the management of the Laskey Mesa population, including control of nonnative, invasive vegetation. At the Santa

Clarita population, the proposed development of Newhall Ranch would convert areas that currently contain nonnative vegetation to urban areas, thereby reducing the total acreage of nonnative vegetation at this site, but this ground disturbance would also create additional opportunities for nonnative plants to invade urban edges of *C. parryi* var. *fernandina* preserves and natural open space. In general, nonnative weedy species are often edge species and become more prevalent or increase in abundance, while rare and sensitive species and species that were once widespread tend to decline (Hilty *et al.* 2006, pp. 42–45).

The 2017 CCA provides for Newhall Land to voluntarily implement conservation measures described in the introduction plan with the goal of establishing new, protected *C. parryi* var. *fernandina* occurrences within the plant's historical range. Weed control is an important component of the introduction plan and will be implemented at all additional conservation areas. The first year of the seeding trials demonstrated successful plant establishment from both broadcast seeding and salvaged topsoil and documented positive effects from weeding. Confirmation that the weed control method used in the seeding trials is effective in improving performance of the plant has important positive implications both for the introduction plan and for management of occupied habitat within the SCP preserves.

In our September 15, 2016, proposed rule, we concluded that nonnative, invasive plants are abundant at both Laskey Mesa and Santa Clarita populations, reduce available habitat quality, compete with *C. parryi* var. *fernandina* for resources, and increase potential for wildfire. We also concluded that this stressor historically affected Laskey Mesa and Santa Clarita populations and will continue to affect *C. parryi* var. *fernandina* and its habitat at both sites into the future, but at a lower level than historically. Management actions will reduce the presence and impact of nonnative, invasive grasses that would be implemented in the near future and

would be effective in reducing this stressor. When we issued the proposed rule, we concluded that nonnative, invasive plants are a population-level threat to *C. parryi* var. *fernandina* (loss of individuals) and its habitat (Factors A and E). Since the publication of the proposed rule, the 2017 CCA was developed and signed that now provides additional protected habitat for *C. parryi* var. *fernandina* by increasing future populations and habitats where weeds will be controlled. At this time, under PECE, we have determined that the conservation actions outlined in the 2017 CCA are sufficiently certain to be implemented and effective such that they should be considered in our assessment of the status. These conservation actions significantly reduce the identified threats, including historical and future loss of habitat from nonnative, invasive plants (Factors A and E), and their impacts to *C. parryi* var. *fernandina* and its habitat. Thus, the best scientific and commercial data available indicate that the stressor of invasive, nonnative plants is not a threat to the continued existence of *C. parryi* var. *fernandina* now nor will it be in the foreseeable future.

#### *Argentine Ants (Factor E)*

Argentine ants may impact pollination and seed dispersal vectors of *C. parryi* var. *fernandina*. Based on the best available information, Argentine ants have not historically impacted the Laskey Mesa or Santa Clarita populations of *C. parryi* var. *fernandina*. Currently, at Laskey Mesa, Argentine ants are present in close proximity, but they were not encountered in areas occupied by *C. parryi* var. *fernandina* because, presumably, the conditions are too dry and thus unsuitable (Sapphos 2000, pp. 6–8). At Santa Clarita, as of February 2016, Argentine ants were present within two SCP preserves, Entrada and Potrero (Dudek, 2016b, pp. 17, 20), in the Santa Clara River corridor (Dudek 2016b, entire), at Middle Canyon Spring (Dudek 2010a, p. 130), and in the existing utility corridor that runs along the southern portion of the property and through the Entrada Preserve (Dudek 2016b, p. 17).

At Laskey Mesa, we do not expect Argentine ants will impact *C. parryi* var. *fernandina* in the future as there is no anticipated change in land use. At Santa Clarita, Argentine ants already occur, and we would expect them to occur within development areas and open areas adjacent to the preserves in the future after development of the proposed Newhall Ranch (Dudek 2010a, p. 130; Dudek 2016b, pp. 4–20).

In our September 15, 2016, proposed rule, we determined that loss of habitat and individuals and the associated edge effects including proliferation of Argentine ants at the Santa Clarita population are likely to decrease habitat quality, reducing resiliency at this population. The 2017 CCA includes establishing additional *C. parryi* var. *fernandina* occurrences at the Santa Clarita population, including three additional conservation areas totaling approximately 825 ac (334 ha) that are contiguous with or adjacent to the existing San Martinez Grande and Potrero preserves established under the SCP. These additional conservation areas are intended to increase the extent of protected *C. parryi* var. *fernandina* occurrences within the Santa Clarita population to buffer it from detrimental effects of loss of habitat and individuals and the associated edge effects, including Argentine ant invasion.

The additional conservation area adjacent to the existing Potrero preserve is at risk of invasion by Argentine ants. The two additional conservation areas adjacent to the existing San Martinez Grande preserve are farther from existing or proposed development (see Figure 2, above). None of the adjacent land uses near San Martinez Grande poses a heightened threat of Argentine ant invasion (Dudek 2016, p. 6). These additional conservation areas are not expected to be at risk of invasion from Argentine ants and should contribute to *C. parryi* var. *fernandina* numbers and recruitment at the Santa Clarita population. Pollination and seed dispersal vectors are therefore expected to remain healthy at these sites. Argentine ants are not considered to be a

significant long-term risk to *C. parryi* var. *fernandina* at the introduction sites outside of the Santa Clarita population because they are all well separated from areas supporting potential source populations of Argentine ants, such as urban development areas.

The 2017 CCA describes that annual Argentine ant monitoring will be conducted as part of the ongoing habitat maintenance and appropriate control measures consistent with the Argentine Ant Control Plan for Newhall Ranch (Dudek 2014, entire) in the event that invasion occurs. If Argentine ants invade, Newhall Land proposes control methods as part of an integrated pest management plan to remove Argentine ants and mitigate for the absence of native pollinators within the preserves (Dudek 2014c, pp. 25–42). Qualified pest control professionals and conservation managers will review and approve any control or mitigation plan.

When we issued the proposed rule, we concluded that Argentine ants are a current and future population-level threat to *C. parryi* var. *fernandina* (loss of individuals) (Factor E). Since the publication of the proposed rule, the 2017 CCA was developed and signed, which will expand the area of protected conservation land for *C. parryi* var. *fernandina* and increase the extent of protected occurrences within the Santa Clarita population to buffer it from detrimental effects of Argentine ant invasion. Argentine ants may still affect some portion of the Santa Clarita population, but by increasing the overall resiliency of the population to those effects by increasing numbers and area for the spineflower, the effects of Argentine ants, including loss of pollinators and seed dispersers, are not expected to result in meaningful impacts at the population scale. At this time, under PECE, we have determined that the conservation actions outlined in the 2017 CCA are sufficiently certain to be implemented and effective such that they should be considered in our assessment of status. These conservation actions significantly reduce the identified threats, including Argentine ants (Factor E), and their impacts to *C. parryi* var.

*fernandina* and its habitat. Thus, the best scientific and commercial data available indicate that Argentine ants are not a threat to the continued existence of *C. parryi* var. *fernandina* now nor will they be in the foreseeable future.

#### *Climate Change (Factors A and E)*

The term “climate” refers to the mean and variability of different types of weather conditions over time, with 30 years being a typical period for such measurements, although shorter or longer periods also may be used (IPCC 2014, p. 119). The term “climate change” thus refers to a change in the mean or variability of one or more measures of climate (for example, temperature or precipitation) that persists for an extended period, typically decades or longer, whether the change is due to natural variability, human activity, or both (IPCC 2014, p. 120). A recent synthesis report of climate change and its effects is available from the Intergovernmental Panel on Climate Change (IPCC) (IPCC 2014, entire).

There is no way to measure past impacts at either population associated with climate change. Compared to historical or baseline temperature and precipitation measurements, projections of climate change in the south coast region of California indicate that precipitation will decrease slightly and temperature will increase slightly by mid-century. The response of *C. parryi* var. *fernandina* may be similar to other plant species with a similar life history. A growing body of literature discusses the specific mechanisms by which climate change could affect the abundance, distribution, and long-term viability of plant species, as well as current habitat configuration over time, including, but not limited to, Root *et al.* (2003), Parmesan and Yohe (2003), and Visser and Both (2005). Some of the responses by plants to climate change presented by these studies and others include the following:

1. Drier conditions may result in less suitable habitat, or a lower germination success and smaller population sizes;
2. Higher temperatures may inhibit germination, dry out soil, or affect pollinator services;
3. The timing of pollinator life cycles may become out-of-sync with timing of flowering;
4. A shift in the timing and nature of annual precipitation may favor expansion in abundance and distribution of nonnative species; and
5. Drier conditions may result in increased fire frequency, making the ecosystems in which a species currently grows more vulnerable to threats of nonnative plant invasion.

Overall, although many climate models generally agree about potential future changes in temperature and precipitation, their consequent effects on vegetation are more uncertain, as is the rate at which any such changes might be realized. It is not clear how or when changes in vegetation type or plant species composition will affect the distribution of *C. parryi* var. *fernandina*. Therefore, uncertainty exists when determining the level of impact climate change may have on *C. parryi* var. *fernandina* or its habitat. At the time of the proposed listing, based on the analysis in the Species Report (Service 2016, pp. 73–78) and summarized above, the best available information did not allow us to reliably project responses of *C. parryi* var. *fernandina* to indicate that climate change is a threat to the continued existence of the plant or its habitat now or in the future, although we continue to seek additional information concerning how climate change may affect the plant and its habitat (Factors A and E).

Since the publication of the proposed rule, the 2017 CCA was developed and signed. The actions in the 2017 CCA will result in at least two new self-sustaining, persistent *C. parryi* var.

*fernandina* occurrences and will increase the number of ecoregions in which *C. parryi* var. *fernandina* is represented. Increasing the number of ecoregions in which the plant is represented is intended to improve the ability of the plant to adapt to changing environmental conditions into the future. Ecoregions denote areas of general similarity in ecosystems through analysis of patterns of biotic and abiotic phenomena, including geology, physiography, vegetation, climate, soils, land use, wildlife, and hydrology; level IV is the finest ecoregion level developed by the Environmental Protection Agency (Environmental Protection Agency 2016). Currently, there are only two *C. parryi* var. *fernandina* populations, 17 mi (27 km) apart, representing only one level IV ecoregion. Increasing the number of ecoregions in which the species occurs may increase the ability of the plant to adapt to a changing environment, which may decrease the risk of future extirpation of the plant under climate change. The two existing *C. parryi* var. *fernandina* populations are located in the Venturan-Angelino Coastal Hills ecoregion. The additional conservation area in the Castaic Mesa area in northern Los Angeles County, near a known extirpated population location, is within the Southern California Lower Montane Shrubland Woodland ecoregion. The additional conservation area located in the Petersen Ranch Mitigation Bank adjacent to Elizabeth Lake near a known extirpated population location is within the Arid Montane Slopes ecoregion.

In our September 15, 2016, proposed rule, based on the analysis in the Species Report (Service 2016, pp. 73–78), we determined that we did not have reliable information to indicate that climate change is a threat to *C. parryi* var. *fernandina* or its habitat now or in the future (Factors A and E). Uncertainty about the effects of climate change on the plant remains. Therefore, we do not have reliable information to indicate that climate change is a threat to *C. parryi* var. *fernandina* habitat now or in the future (Factors A and E).

### *Wildfire (Factor E)*

In our Species Report, we concluded that wildfire directly impacts *C. parryi* var. *fernandina* where they co-occur, but that this impact is temporary until vegetation reestablishes post fire (Service 2016, pp.73-76). The extent of direct impacts may depend on the severity of the fire, which is a function of its intensity (heat output) and duration. A high-intensity (i.e., hotter) and/or long duration fire would be more likely to incinerate seeds than a fire that is lower intensity (i.e., cooler) and/or has a shorter duration (i.e., is faster moving) (McGraw 2017, p. 4). Seed germination of related taxa, Parry's spineflower, appears to be inhibited by fire (Ellstrand 1994 and Ogden 1999, in CBI 2000, pp. 4, 13). A study on the effects of fire on Ben Lomond spineflower (*Chorizanthe pungens* var. *hartwegiana*) found that fire directly reduced seed germination during the first year after the fire (McGraw 2017, p. 5).

Despite the effect of direct scorching, fire may prove beneficial to *C. parryi* var. *fernandina* by creating openings in ground cover and temporarily reducing competition (CBI 2000, p. 13). The Ben Lomond spineflower study found that fire indirectly facilitated Ben Lomond spineflower by removing accumulative leaf litter and creating openings for seedlings (McGraw 2017, p. 5). However, by creating such open areas, wildfire expands the footprint of invasive annual plants that are more likely to ignite and carry fire than much of the native flora, thereby creating a feedback mechanism.

The Rye Fire on Newhall Ranch began on December 5, 2017, and burned approximately 2,845 ac (1,150 ha) of land within the boundaries of the SCP area. Of the seven SCP preserves, four were burned (Grapevine Mesa, Airport Mesa, Spring, and Potrero). The westernmost portion of the Airport Mesa preserve burned while the entirety of the Spring, Grapevine, and Potrero preserves burned. Of the 20-ac (8-ha) cumulative *C. parryi* var. *fernandina* occupied area

within the SCP, approximately 13 ac (5 ha) were affected by the Rye Fire (approximately 66 percent of total cumulative occupied area since 2002), including 4 ac (1.6 ha) in the Grapevine Mesa preserve, 5 ac (2 ha) in Airport Mesa preserve, less than 1 ac (0.4 ha) in the Spring preserve, and 1 ac (0.4 ha) in the Potrero preserve (Dudek 2017, pp. 14-15). Approximately 3 ac (1.2 ha) of *C. parryi* var. *fernandina* habitat outside the SCP preserves were affected by the fire; of that area, approximately 1 ac (0.4 ha) was no longer occupied at the time of the fire, because this area lies within the Mission Village Project Site, and Newhall Land had previously conducted soil salvage in the *C. parryi* var. *fernandina* occupied area as an SCP conservation measure (Dudek 2017, pp. 14-15). This soil was stored off site at the time of the fire and was not burned.

The intensity of the Rye Fire on Newhall Ranch was characterized as light (Watershed Emergency Response Team 2018, pp. 18-20). Based on field testing, the California Geological Survey found that within the mapped fire perimeter, 64 percent of the area was classified as very low/unburned, 34 percent as low, and 2 percent as moderate; no area was classified as high (Watershed Emergency Response Team 2018, pp. 18-20). The severity of the Rye Fire was similar to or generally less than the most recent fires on Newhall Ranch in *C. parryi* var. *fernandina* habitat, the 2003 Verdale Fire and 2007 Magic Fire. Severity in burn areas was generally low in the Magic Fire and very low to moderate in the Verdale Fire (Dudek 2017, p. 10). At the Laskey Mesa population, the Devonshire-Parker Fire (1967) burned a portion of the *C. parryi* var. *fernandina*; the Clampett Fire (1970) burned most of the plants; and the Dayton Fire (1982) and Topanga Fire (2005) burned all *C. parryi* var. *fernandina* plants onsite. These fires had relatively short intervals between burn events, between 2 and 18 years.

If the Rye Fire promotes the invasion and spread of exotic plants, it will degrade habitat for *C. parryi* var. *fernandina*. In the 2016 Species Report, we found that small native annuals like *C. parryi* var. *fernandina* cannot compete with fast-growing nonnative plants (i.e., grasses) for light, water, and soil nutrients (Service 2016, pp. 39-44). *Chorizanthe parryi* var. *fernandina*'s size, density, and biomass were all found to be negatively correlated with exotic plant cover during the observational studies conducted as part of habitat characterization (McGraw 2017, p. 20). In addition, by manipulating the cover of exotic plants through weed whacking, the 2016 seeding trials demonstrated that exotic plants reduce population growth rate by significantly reducing *C. parryi* var. *fernandina* seedling establishment, survivorship, flower production, and seed set through competition (McGraw and Thomson 2017, p. 14).

Numerous previous wildfire events have occurred on Newhall Ranch since 1913, including at least 12 since 1983 (excluding the 2017 Rye Fire), and several of these fires have affected extensive areas of spineflower-occupied habitat (Dudek 2017, p. 10). *Chorizanthe parryi* var. *fernandina* monitoring began on Newhall Ranch in 2002. Two fires have affected the Santa Clarita population since then. The 2003 Verdale Fire burned almost the entire San Martinez Grande preserve area. The 2007 Magic Fire burned portions of the Grapevine Mesa and Entrada preserve areas. Both the 2003 Verdale Fire and the 2007 Magic Fire occurred in October, after *C. parryi* var. *fernandina* surveys had been conducted for that year.

Large year-to-year fluctuations in population numbers make it difficult to discern pre- and post-burn trends in *C. parryi* var. *fernandina*. As an annual plant that exhibits large fluctuations in aboveground population size, abundance appears to track to annual climatic variability, particularly amount of rainfall (Dudek 2010a, pp. 18–20; Dudek 2012, p. 12; McGraw 2012, entire). Surveys conducted following the fires that occurred on Newhall Ranch in

2003 and 2007 show that year-to-year fluctuations in *C. parryi* var. *fernandina* occupied area and population numbers within burned areas have generally been consistent with fluctuations in unburned areas (Dudek 2017, p. 11). In addition, no significant patterns relating historical fire frequency to *C. parryi* var. *fernandina* cover, density, survival to flower, or size were observed in 2014 (McGraw 2017, p. 3). However, *C. parryi* var. *fernandina* cover, density, and size were all generally negatively correlated with the cover of shrubs, which increases with time after fire, suggesting that *C. parryi* var. *fernandina* may do better in terms of density and size in more recently burned areas (McGraw 2017, p. 3).

We expect relatively minor effects from the Rye Fire on arthropods that could be *C. parryi* var. *fernandina* pollinators. Jones *et al.* (2004) conducted pollinator studies on *C. parryi* var. *fernandina* populations on Newhall Ranch and Ahmanson Ranch, and found that one of the dominant floral visitors on Newhall Ranch was little red ant and the dominant floral visitors at the Ahmanson Ranch were two species of ants: the pyramid ant and the southern fire ant. Matsuda *et al.* (2011, entire) investigated the effect of broad-scale wildfire on ground foraging ants within southern California. They found a net negative effect of fire on the overall diversity of ground foraging ants likely because of changes in community structure rather than the loss of species richness. Although they found a negative effect of fire on ant diversity, the increases in overall species diversity in both the fire-impacted and reference plots suggest that ground-foraging ants may be relatively resilient to fire because only about 2 percent of an ant colony is active on the surface, thus limiting direct mortality. They also suggest that unburned patches within a burn area can provide refuge for ants and source populations for recolonization of burned areas.

Fire suppression activities may impact *C. parryi* var. *fernandina* and its habitat, including clearing vegetation for fire and fuel breaks or spreading retardant. Fire retardant is known to act as a fertilizer that enhances the growth of nonnative grasses (Avery 2001, pp. 17–18). During the Rye Fire, Airport Mesa was the only SCP preserve where Phos-Chek (i.e., aerial applied fire retardant) was dropped. It covered approximately 5 ac (2 ha) of the preserve and less than 1 ac (0.4 ha) of the cumulative spineflower area in that preserve. Also in the Airport Mesa Preserve, an existing road and a portion of undisturbed lands were used by vehicles during the fire (Dudek 2017, p. 15).

In 2011, the Service issued a biological and conference opinion based on our review of the continued aerial application of fire retardants, including Phos-Chek, on National Forest System Lands and its effects on 75 species listed as endangered or threatened, or proposed for listing, and on designated critical habitat in accordance with section 7 of the Act (Service 2011, entire). This opinion did not directly address effects to *C. parryi* var. *fernandina*. However, it addressed effects to the slender-horned spineflower (*Dodecahema leptoceras*) (Service 2011, pp. 411-414). Our analyses found that fire retardant applications could impact the plant via short-term (1 to 2 growing seasons) phytotoxic effects, including leaf burning, shoot die-back, a decrease in germination, and plant death. However, the more likely effects to the species would be that nonnative plants could be enhanced by fire retardant application and impact population. Fire retardants contain nitrogen and phosphorus that could act as nutrients. While fire retardant could enhance nonnative plants, it could also enhance slender-horned spineflower growth.

The effects of Phos-Check were also examined as part of the Ben Lomond spineflower study (McGraw 2017, pp. 5-6). There were no biologically meaningful increases in the cover or richness of exotic plants within the Phos-Chek treated areas. This may reflect the dense shrub

and tree cover in these areas, which limits the ability of light-limited exotic plants to establish, or the Phos-Chek nutrients might have been readily taken up by native plants, or readily flushed from the sandy-soil system.

Monitoring of *C. parryi* var. *fernandina* on Newhall Ranch within the SCP preserves will continue to evaluate the performance of the Santa Clarita population post-Rye Fire. If the monitoring shows that management is needed to address direct or indirect effects of the fire, measures will be incorporated into annual work plans as required by the SCP and reviewed by the Spineflower Adaptive Management Working Group. The primary anticipated post-fire preserve management activity involves monitoring and controlling weeds that may invade burned areas following the fire event, particularly if they exceed 30 percent relative cover (Dudek 2017, p. 7).

Additional information about the effects of the fire on *C. parryi* var. *fernandina* will be obtained through the second year of monitoring of the 2016 seeding trial study plots. The Rye Fire burned 7 of the 10 experimental blocks (groups of treatment plots) into which spineflower seed was sown and topsoil was placed to evaluate the effects of seeding methods and habitat treatment (weeding, irrigation, and soil compaction) on spineflower establishment (McGraw 2017, pp. 7-8). During monitoring of the plots in the 2018 growing season, rates of seedling establishment, survivorship, growth, and reproduction can be compared across plots that burned and those that did not burn.

Given the large *C. parryi* var. *fernandina* occupied area and potentially suitable habitat affected by the Rye Fire (approximately 13 ac (5 ha) or 66 percent of the cumulative occupied area of the Santa Clarita population), the fire has the potential to affect the distribution and performance of the population both directly and indirectly, with these effects having the potential

to result in positive or negative outcomes. Overall, the Rye Fire falls within the historical range of fires on Newhall Ranch in terms of size and severity (i.e., generally light burning and little evidence of deep soil charring), and we expect that the plant will be affected by this fire similarly to past fires, where year-to-year fluctuations in *C. parryi* var. *fernandina* occupied area and population numbers within burned areas were generally consistent with fluctuations in unburned areas (Dudek 2017, p. 11). The biggest concern is that fire may promote the invasion and spread of nonnative, invasive grasses that out-compete small native annuals like *C. parryi* var. *fernandina*. The effects of the Rye Fire on *C. parryi* var. *fernandina* may depend on the climate in the ensuing years. Monitoring conducted under the SCP will continue to evaluate the performance of the population, in terms of cover, density, and size of plants, within the SCP preserves, and if the monitoring shows that management is needed to address direct or indirect effects of the fire, such as an increase in nonnative, invasive grasses, measures will be incorporated into annual work plans and implemented (Dudek 2017, p. 7). Therefore, the best scientific and commercial data available indicate that the stressor of wildlife is not a threat to the continued existence of *C. parryi* var. *fernandina* now nor will it likely be in the foreseeable future.

### *Synergistic Effects*

When stressors occur together, one stressor may exacerbate the effects of another stressor, causing effects not accounted for when stressors are analyzed individually. Synergistic effects may be observed in a short amount of time or may not be noticeable for years into the future, and could affect the long-term viability of *C. parryi* var. *fernandina*. Stressors that could act synergistically on *C. parryi* var. *fernandina* include development; having small, isolated populations; nonnative, invasive plants; Argentine ants; wildfire; and potentially climate change.

At the Laskey Mesa site, the presence of nonnative, invasive grasses increases the frequency of wildfire, which in turn creates more open area for nonnative, invasive plants to grow that are more likely to ignite and carry fire than native vegetation (Keeley *et al.* 2005, p. 2123). At the Santa Clarita site, the future development of Newhall Ranch would directly remove 24 percent of the *C. parryi* var. *fernandina* population, fragmenting the habitat between the occurrences of *C. parryi* var. *fernandina*, which will create edge effects around remaining occurrences within *C. parryi* var. *fernandina* preserves, and increase the risk of invasion of Argentine ants and nonnative, invasive plants. When we issued our September 15, 2016, proposed rule, we determined that when considered together, the impact of these stressors has the potential to be high. Even though the impact of each of these stressors may be low to moderate under current conditions, the proposed development of Newhall Ranch, which would occur over the next 25 years, will likely exacerbate the impact of the stressors while confining the *C. parryi* var. *fernandina* population at this site to small patches of suitable habitat adjacent to and bordered by urban development. At the time of the proposed listing, we also determined that long-term future impacts may increase synergistic effects, and it is unknown if *C. parryi* var. *fernandina* will be able to adapt to the potential synergistic effect of stressors. Since the publication of the proposed rule, the 2017 CCA was developed and signed, and is being implemented; the 2017 CCA now provides additional populations and protected habitat for *C. parryi* var. *fernandina*.

At the Laskey Mesa site, we anticipate that management actions will be undertaken to manage the proliferation of nonnative, invasive grasses. At the Santa Clarita site, the 2017 CCA conservation efforts will expand the area of protected conservation land for the plant and will increase the extent of protected locations within the Santa Clarita population to buffer it from detrimental effects. Argentine ants may still affect some portion of the Santa Clarita population,

but by increasing the overall resiliency of the population to those effects by increasing numbers and area for the spineflower, the effects of Argentine ants, including some loss of pollinators and seed dispersers, is not expected to have significant impacts at the population scale. Weeding will decrease the impacts of nonnative, invasive plants. Additional conservation areas associated with the 2017 CCA outside the Santa Clarita population are not at risk from Argentine ant invasion; weeding will also take place. Increasing the overall redundancy of *C. parryi* var. *fernandina* with additional populations and distributing those populations across different ecoregions improves the ability of the plant to withstand small-scale stressors, as well as catastrophic events. At this time, under PECE, we have determined that the conservation actions outlined in the 2017 CCA are sufficiently certain to be implemented and effective such that the actions will significantly reduce the identified threats, including their synergistic effects, to *C. parryi* var. *fernandina* and its habitat. Thus, the best scientific and commercial data available indicate that synergistic effects acting on *C. parryi* var. *fernandina* or its habitat are not a threat to the continued existence of the plant now nor will they be in the foreseeable future.

#### *Resiliency, Redundancy, and Representation*

We use the principles of resiliency, redundancy, and representation as a lens to evaluate current and future effects to *C. parryi* var. *fernandina*. Resiliency describes the ability of a species to withstand stochastic disturbance. Resiliency is positively related to population size and growth rate, and may be influenced by connectivity among populations. Generally speaking, populations need abundant individuals within habitat patches of adequate area and quality to maintain survival and reproduction in spite of disturbance.

Redundancy describes the ability of a species to withstand catastrophic events. It is about spreading risk among multiple populations to minimize the potential loss of the species from

catastrophic events. Redundancy is characterized by having multiple, resilient populations distributed within the species' ecological settings and across the species' range. It can be measured by population number, resiliency, special extent, and degree of connectivity.

Representation describes the ability of a species to adapt to changing environmental conditions overtime. It is characterized by the breadth of genetic and environmental diversity within and among populations. Measures may include the number of varied niches occupied, the gene diversity, and heterozygosity of alleles per locus.

In our September 15, 2016, proposed rule (81 FR 63454) to list *Chorizanthe parryi* var. *fernandina* as a threatened species, we concluded that, overall, redundancy and representation are currently reduced and resiliency is likely to decrease in the future, bringing into question whether *C. parryi* var. *fernandina* can sustain itself in the face of environmental fluctuations and random, naturally occurring events.

#### Resiliency

In our proposed rule, we determined that loss of habitat and individuals and the associated edge effects (i.e., proliferation of invasive, nonnative plants and Argentine ants) at the Santa Clarita population are likely to decrease habitat quality, reducing resiliency at this population and increasing the overall risk to the plant from random, naturally occurring events. The portions of the 2017 CCA that intend to establish additional *C. parryi* var. *fernandina* occurrences at the Santa Clarita population (Areas 1–3 in Figure 2, above) include three additional conservation areas totaling approximately 825 ac (334 ha) that are contiguous with or adjacent to the existing San Martinez Grande and Potrero preserves established under the SCP. These areas are intended to expand the area of protected conservation land for *C. parryi* var. *fernandina* and increase the extent of protected occurrences within the Santa Clarita population

to buffer it from detrimental effects of loss of habitat and individuals and the associated edge effects.

Given that invasion by invasive, nonnative plants and Argentine ants could occur, all additional conservation areas will be monitored and managed for these stressors. The enhancement areas surrounding introduction sites will help minimize invasion of nonnative plant species, which could threaten the quality of the habitat for *C. parryi* var. *fernandina* occupation. The overall maintenance program described in the introduction plan, which will occur throughout the duration of the 10-year maintenance and monitoring period, directs enhancement efforts in the additional conservation areas to focus on: (1) Reducing annual nonnative/exotic plant species cover and competition to help facilitate *C. parryi* var. *fernandina* establishment, persistence, and recruitment; (2) increasing native species cover and diversity in disturbed areas, particularly in areas surrounding introduction sites that function as a buffer; and (3) providing regulation and protection of the preserve boundaries from unauthorized human activity and intrusion.

As of February 2016, Argentine ants were present within two SCP preserves at the Santa Clarita population, Entrada and Potrero (Dudek, 2016, pp. 17, 20). Therefore, the additional conservation area adjacent to the existing Potrero preserve is at risk of invasion by Argentine ants. The two additional conservation areas adjacent to the existing San Martinez Grande preserve are farther from existing or proposed development (see Figure 2, above). None of the adjacent land uses near San Martinez Grande poses a heightened threat of Argentine ant invasion (Dudek 2016, p. 6); therefore, these additional conservation areas are not expected to be at risk of invasion Argentine ants and should contribute to *C. parryi* var. *fernandina* numbers and recruitment at the Santa Clarita population. Section 2.4 of the introduction plan describes that

annual Argentine ant monitoring will be conducted as part of the ongoing habitat maintenance and appropriate control measures consistent with the Argentine Ant Control Plan for Newhall Ranch (Dudek 2014, entire) will be implemented in the event that invasion occurs. If Argentine ants invade, Newhall Land proposes control methods as part of an integrated pest management plan to remove Argentine ants and mitigate for the absence of native pollinators within the preserves (Dudek 2014c, pp. 25–42). Qualified pest control professionals and conservation managers will review and approve any control or mitigation plan.

Overall, increasing the number and health of the plants at the Santa Clarita population with introduction and enhancement is expected to increase the overall resiliency of the population to potential proliferation of invasive, nonnative plants and the effects of Argentine ant invasion. The two additional conservation areas adjacent to the San Martinez Grande preserve are at low risk of invasion by invasive, nonnative plants and Argentine ants, and should contribute to *C. parryi* var. *fernandina* numbers and recruitment at the Santa Clarita population in the event that the additional conservation area adjacent to the Potrero preserve becomes invaded by Argentine ants and control measures are unsuccessful.

The introduction sites outside of the Santa Clarita population include an additional conservation area of 357 ac (144 ha) located in the Simi Valley watershed on the southern boundary of Newhall Land property in Ventura County (Area 5 in Figure 2, above); an additional conservation area of approximately 316 ac (128 ha) located on Newhall Land property in the Castaic Mesa area in northern Los Angeles County, near a known extirpated population location (Area 4 in Figure 2); and an additional conservation area located in a 7-ac (2.8 -ha) portion of the Petersen Ranch Mitigation Bank adjacent to Elizabeth Lake, also near a known extirpated population location (Area 6 in Figure 2). Argentine ants are not considered to be a significant

long-term risk to *C. parryi* var. *fernandina* at these introduction sites because they are all well separated from areas supporting potential source populations, such as urban development areas. Supplemental watering will be delivered through a water truck rather than a permanent point of connection to a live water line to minimize the potential for the introduction of Argentine ants. The enhancement areas surrounding introduction sites are intended to help minimize invasion of nonnative plant species, which could threaten the quality of the habitat for *C. parryi* var. *fernandina* occupation.

#### Redundancy

In our proposed rule, we determined that with only two extant populations, there may not be sufficient redundancy to sustain *C. parryi* var. *fernandina* over the long term, given current and future stressors acting upon the populations. The additional conservation areas proposed in the introduction plan are intended to further increase the number and extent of *C. parryi* var. *fernandina* within its historic range. The 2017 CCA provides for Newhall Land to introduce *C. parryi* var. *fernandina* within portions of the additional conservation areas with the goal of establishing at least two new self-sustaining, persistent occurrences to at least double the redundancy of the spineflower. *C. parryi* var. *fernandina* introduction will occur on a total of at least 10 ac (4 ha) within the additional conservation areas: (1) Three additional conservation areas totaling approximately 825 ac (334 ha) are contiguous with or adjacent to the existing San Martinez Grande and Potrero preserves established under the SCP (all of which would be considered part of the Santa Clarita population); (2) an additional conservation area of 357 ac (144 ha) is located in the Simi Valley watershed on the southern boundary of Newhall Land property in Ventura County; (3) an additional conservation area of approximately 316 ac (128 ha) is located on Newhall Land property in the Castaic Mesa area in northern Los Angeles

County, near a known extirpated population location; and (4) an additional conservation area containing introduction sites is located in a 7-ac (2.8-ha) portion of the Petersen Ranch Mitigation Bank adjacent to Elizabeth Lake, also near a known extirpated population location.

#### Representation

In our proposed rule, we determined that the two *C. parryi* var. *fernandina* populations represent only one level IV ecoregion (EPA 2016), down from five historically, which theoretically may decrease the ability of the plant to adapt to changing environmental conditions into the future. The goal of the 2017 CCA is to establish at least two new self-sustaining, persistent *C. parryi* var. *fernandina* occurrences, at least one of which will be in a different ecoregion from the existing populations to increase the number of ecoregions in which the species is represented (see Figure 2, above). The two existing populations are located in the Venturan-Angelino Coastal Hills ecoregion. The additional conservation area in the Castaic Mesa area in northern Los Angeles County, near a known extirpated population location, is within the Southern California Lower Montane Shrubland Woodland ecoregion. The additional conservation area located in the Petersen Ranch Mitigation Bank adjacent to Elizabeth Lake near a known extirpated population location is within the Arid Montane Slopes ecoregion. Establishing at least two new self-sustaining, persistent spineflower occurrences where at least one is in a different ecoregion from the existing populations should improve the ability of the plant to adapt to changing environmental conditions into the future.

In conclusion, based on our high certainty that these efforts will be implemented and be effective, we conclude that the nature and extent of threats identified in our September 15, 2016, proposed rule (81 FR 63454) are adequately addressed. The threats identified in the proposed rule include reduced resiliency due to habitat fragmentation and associated edge effects (i.e.,

proliferation of Argentine ants) at the Santa Clarita population, reduced redundancy with only two extant populations, and reduced representation down to one ecoregion from five historically across the range of *C. parryi* var. *fernandina*. The 2017 CCA and associated introduction plan have identified the types of threats to the plant and include actions to address these threats, including the establishment of at least two new self-sustaining, persistent *C. parryi* var. *fernandina* occurrences, at least one of which will be in a different ecoregion from the existing populations on a total of at least 10 ac (4 ha) within the additional conservation areas. Permanent conservation instruments will be recorded over each of the additional conservation areas to ensure that the habitat values are maintained and that all initial habitat enhancement and introduction activities and perpetual management and monitoring will be funded.

### **Determination of Species Status**

Section 4 of the Act (16 U.S.C. 1533) and its implementing regulations (50 CFR part 424) set forth the procedures for determining whether a species meets the definition of “endangered species” or “threatened species.” The Act defines an “endangered species” as a species that is “in danger of extinction throughout all or a significant portion of its range,” and a “threatened species” as a species that is “likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.” The Act requires that we determine whether a species meets the definition of “endangered species” or “threatened species” because of any of the following factors:

- (A) The present or threatened destruction, modification, or curtailment of its habitat or range;
- (B) Overutilization for commercial, recreational, scientific, or educational purposes;
- (C) Disease or predation;

(D) The inadequacy of existing regulatory mechanisms; or

(E) Other natural or manmade factors affecting its continued existence.

*Determination of Status Throughout All of its Range*

We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats to *C. parryi* var. *fernandina* including development (Factors A and E); nonnative, invasive plants (Factors A and E), Argentine ants (Factor E); wildfire (Factor E); and potentially climate change (Factors A and E) acting on the small, isolated populations (Factor E) of *C. parryi* var. *fernandina*. Our analysis of this information indicates that these stressors are not of sufficient imminence, intensity, or magnitude to indicate that *C. parryi* var. *fernandina* is in danger of extinction or likely to become an endangered species within the foreseeable future throughout all of its range.

Since the publication of the September 15, 2016, proposed rule, the 2017 CCA was developed and signed, and is being implemented; the 2017 CCA provides for additional populations and protected habitat for *C. parryi* var. *fernandina*. The additional conservation areas proposed in the *C. parryi* var. *fernandina* introduction plan are intended to further increase the number and extent of the spineflower within its historic range. The actions in the 2017 CCA will result in at least two new self-sustaining, persistent *C. parryi* var. *fernandina* occurrences and will increase the number of ecoregions in which the plant is represented. This effort is expected to double the number of extant *C. parryi* var. *fernandina* occurrences. At the Santa Clarita population, the extent of protected occurrences will be increased to buffer the population from edge effects, such as Argentine ant invasion. At both Santa Clarita and the Laskey Mesa populations, we anticipate that management actions will be undertaken to manage the proliferation of nonnative, invasive grasses. Increasing the overall redundancy of *C. parryi* var.

*fernandina* with additional populations and distributing those populations across different ecoregions improves the ability of the plant to withstand small-scale stressors, as well as catastrophic events. Increasing the number of ecoregions in which the spineflower is represented is intended to improve the ability of the plant to adapt to changing environmental conditions into the future. Thus, after assessing the best available information, we conclude that *C. parryi* var. *fernandina* is not in danger of extinction throughout all of its range nor is it likely to become so in the foreseeable future.

Because we determined that *C. parryi* var. *fernandina* is not in danger of extinction or likely to become so in the foreseeable future throughout all of its range, we will consider whether there are any significant portions of its range in which *C. parryi* var. *fernandina* is in danger of extinction or likely to become so in the foreseeable future.

#### *Determination of Status Throughout a Significant Portion of its Range*

Under the Act and our implementing regulations, a species may warrant listing if it is an endangered species or a threatened species throughout all or a significant portion of its range. The Act defines “endangered species” as any species that is “in danger of extinction throughout all or a significant portion of its range,” and “threatened species” as any species that is “likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.” The term “species” includes “any subspecies of fish or wildlife or plants, and any distinct population segment [DPS] of any species of vertebrate fish or wildlife which interbreeds when mature.” We published a final policy interpreting the phrase “significant portion of its range” (SPR) (79 FR 37578, July 1, 2014). The final policy states that (1) if a species is found to be an endangered or a threatened species throughout a significant portion of its range, the entire species is listed as an endangered or a threatened species, respectively, and

the Act's protections apply to all individuals of the species wherever found; (2) a portion of the range of a species is "significant" if the species is not currently an endangered species or a threatened species throughout all of its range, but the portion's contribution to the viability of the species is so important that, without the members in that portion, the species would be in danger of extinction, or likely to become so in the foreseeable future, throughout all of its range; (3) the range of a species is considered to be the general geographical area within which that species can be found at the time the Service makes any particular status determination; and (4) if a vertebrate species is an endangered species or a threatened species throughout an SPR, and the population in that significant portion is a valid DPS, we will list the DPS rather than the entire taxonomic species or subspecies.

The SPR policy is applied to all status determinations, including analyses for the purposes of making listing, delisting, and reclassification determinations. The procedure for analyzing whether any portion is an SPR is similar, regardless of the type of status determination we are making. The first step in our analysis of the status of a species is to determine its status throughout all of its range. If we determine that the species is in danger of extinction, or likely to become so in the foreseeable future, throughout all of its range, we list the species as an endangered (or threatened) species and no SPR analysis will be required. If the species is neither an endangered nor a threatened species throughout all of its range, we determine whether the species is an endangered or a threatened species throughout a significant portion of its range. If it is, we list the species as an endangered or a threatened species, respectively; if it is not, we conclude that listing the species is not warranted.

When we conduct an SPR analysis, we first identify any portions of the species' range that warrant further consideration. The range of a species can theoretically be divided into

portions in an infinite number of ways. However, there is no purpose to analyzing portions of the range that are not reasonably likely to be significant and either an endangered or a threatened species. To identify only those portions that warrant further consideration, we determine whether there is substantial information indicating that (1) the portions may be significant and (2) the species may be in danger of extinction in those portions or likely to become so within the foreseeable future. We emphasize that answering these questions in the affirmative is not a determination that the species is an endangered or a threatened species throughout a significant portion of its range—rather; it is a step in determining whether a more detailed analysis of the issue is required. In practice, a key part of this analysis is whether the threats are geographically concentrated in some way. If the threats to the species are affecting it uniformly throughout its range, no portion is likely to warrant further consideration. Moreover, if any concentration of threats apply only to portions of the range that clearly do not meet the biologically based definition of “significant” (i.e., the loss of that portion clearly would not be expected to increase the vulnerability to extinction of the entire species); those portions will not warrant further consideration.

If we identify any portions that may be both (1) significant and (2) endangered or threatened, we engage in a more detailed analysis to determine whether these standards are indeed met. The identification of an SPR does not create a presumption, prejudgment, or other determination as to whether the species in that identified SPR is an endangered or a threatened species. We must go through a separate analysis to determine whether the species is an endangered or a threatened species in the SPR. To determine whether a species is an endangered or a threatened species throughout an SPR, we will use the same standards and methodology that we use to determine if a species is an endangered or a threatened species throughout its range.

Depending on the biology of the species, its range, and the threats it faces, it may be more efficient to address the “significant” question first, or the status question first. Thus, if we determine that a portion of the range is not “significant,” we do not need to determine whether the species is an endangered or a threatened species there; if we determine that the species is not an endangered or a threatened species in a portion of its range, we do not need to determine if that portion is “significant.”

Applying the process described above to identify whether any portions warrant further consideration, we determine whether there are any particular portions where (1) the portions may be significant and (2) the species may be in danger of extinction or likely to become so within the foreseeable future. To identify portions that may be significant, we consider whether any natural divisions within the range might be of biological or conservation importance. To identify portions where the species may be in danger of extinction or likely to become so in the foreseeable future, we consider whether the threats are geographically concentrated in any portion of the species’ range.

We evaluated the range of *Chorizanthe parryi* var. *fernandina* to determine if any area may be a significant portion of the range. We determine whether a portion is significant by considering the importance of the members in that portion to the conservation of the species. To be significant, a portion must be of such importance to the species that the hypothetical loss of the members in that portion would cause the entire species to be in danger of extinction or likely to become so in the foreseeable future throughout the remainder of its range. In this determination, we are not forecasting the outcome of our evaluation of the portion’s status; rather, we are only hypothesizing what the status of the species would be if the members of the species in that portion were to be extirpated.

Because there are only two extant *Chorizanthe parryi* var. *fernandina* populations (Santa Clarita population and Laskey Mesa population) 17 mi (27 km) apart, we determined that either the Santa Clarita population portion or the Laskey Mesa population portion of the range may be considered significant. At the same time, we also examined whether either portion, the Santa Clarita population or the Laskey Mesa population, might be endangered or threatened as a result of a geographic concentration of threats. We determine the status of the species in a portion of its range the same way we determine the status of a species throughout all of its range. We consider whether threats are reasonably likely to affect the species in that portion to such an extent that the species is in danger of extinction or likely to become so in the foreseeable future in that portion.

When we issued our September 15, 2016, proposed rule (81 FR 63454), we determined that the Laskey Mesa population was currently affected by nonnative, invasive grasses; effects of small, isolated populations; and potentially climate change. We also determined at the time we issued that proposed rule that the Santa Clarita population was affected by nonnative, invasive grasses; Argentine ants; effects of small, isolated populations; and potentially climate change. The Santa Clarita population would also be affected in the future by the proposed Newhall Ranch development project, which would result in removal of 24 percent of the *C. parryi* var. *fernandina* population at this site. Therefore, the Santa Clarita population portion of the *C. parryi* var. *fernandina*'s range would be affected by a greater concentration of stressors than the Laskey Mesa population portion. At the time of the proposed listing, this greater concentration of the stressors at the Santa Clarita population was considered to be significant, so this population may have met the definition of threatened or endangered in that portion of the range.

However, in considering whether the geographic concentration of threats in the Santa Clarita portion of the range are such that the species may be threatened or endangered there, we now consider how the implementation of the 2017 CCA have and will continue to ameliorate these threats. With the implementation of the 2017 CCA, as discussed above, we have determined that the Santa Clarita portion of *C. parryi* var. *fernandina*'s range currently does not meet the definition of a threatened or endangered species.

As summarized under **Ongoing and Future Conservation Efforts** and *Summary of PECE Analysis* above, we have a high degree of certainty that the 2017 CCA will continue to be implemented and will be effective. The CCA provides for Newhall Land to voluntarily implement conservation measures with the goal of establishing new, protected spineflower occurrences within its historical range, such that no future *C. parryi* var. *fernandina* population will be one of only two small, isolated populations (Factor E). For the Santa Clarita population, increasing the extent of protected *C. parryi* var. *fernandina* occurrences within that population will help buffer it from detrimental effects of loss of habitat and individuals and the associated edge effects, such as invasion of nonnative plants (Factors A and E) and Argentine ants (Factor E), such that these stressors are not having significant impacts in this portion of the range currently or into the future. For the Laskey Mesa population, with additional funding and management forthcoming and no future land use changes anticipated, we conclude that stressors affecting this population, such as invasion of nonnative plants (Factors A and E), are not having significant impacts in this portion of the range.

We have identified portions (both Santa Clarita and Laskey Mesa) of *C. parryi* var. *fernandina*'s range that may be significant. We also identified a portion (Santa Clarita population) where the species may be in danger of extinction or likely to become so in the

foreseeable future, as a result of a greater concentration of threats. However, the best information available does not support a conclusion that the species may be in danger of extinction or likely to become so in the foreseeable future in the Santa Clarita portion of the range given the conservation efforts in the 2017 CCA. Also, while the Laskey Mesa portion of the range may be significant, there is no concentration of threats in that portion that would lead us to conclude that the species may be in danger of extinction or likely to become so in the foreseeable future. Therefore, neither portion of *C. parryi* var. *fernandina*'s range warrants a detailed SPR analysis.

#### *Determination of Status*

We have carefully assessed the best scientific and commercial data available regarding the past, present, and future threats to *Chorizanthe parryi* var. *fernandina*. We have determined that the conservation efforts have sufficient certainty of implementation and effectiveness such that they can be relied upon in this final listing determination. Further, we conclude that conservation efforts have reduced or eliminated current and future threats to *C. parryi* var. *fernandina* to the point that it is not in danger of extinction now throughout all or significant portions of its range, nor is it likely to become so within the foreseeable future throughout all or any significant portion of its range; therefore, *C. parryi* var. *fernandina* does not meet the definition of an endangered species or threatened species. As a consequence of this determination, we are withdrawing our proposed rule to list *C. parryi* var. *fernandina* as a threatened species.

#### **References Cited**

A complete list of references cited in this document is available on <http://www.regulations.gov> under Docket No. FWS-R8-ES-2016-0078 and upon request from the Ventura Fish and Wildlife Office (see **FOR FURTHER INFORMATION CONTACT**).

**Authors**

The primary authors of this document are the staff members of the Ventura Fish and Wildlife Office.

**Authority**

The authority for this action is the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Dated: January 26, 2018

James W. Kurth

James W. Kurth

Deputy Director,

U.S. Fish and Wildlife Service,

Exercising the Authority of the Director,

U.S. Fish and Wildlife Service.

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